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Hospital
READING ROOM

American Journal of Hospital Pharmacy

official publication of the American Society of Hospital Pharmacists

FORMERLY The BULLETIN

INCONSISTENCY IN PHARMACEUTICAL NAMES

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Dear Sirs:

A Member Comments on Hahnemann Case

DEAR SIR: Professional and Trade Relations Director George Straayer's explanatory letter* is as intriguing as it is timely, (since the hospital pharmacist in question has received a 90 day suspension—now under appeal).

While I believe Mr. Straayer's 'story' could be discussed by others equally acquainted with the 'Philadelphia incident' in its entirety, I desire to elaborate on several of his 'facts'.

His letter emphasizes that Schering's representative was asked to visit a physician who had a complaint about the quality of a Schering product. (Underscoring his.) In this regard, I do not question Mr. Straayer's veracity, though I question his capacity for total recall insofar as the physician in point has testified under oath that he requested the Schering representative to call on him to obtain a clinical supply of Schering's brand of prednisone, (Meticorten) with which he intended to replace the quantity he borrowed from the hospital pharmacist. Too, the same physician is on record clarifying that the Schering representative initially intimated the hospital product was inferior (which in fact it was not). Only after such alarming inferences did the physician question the quality of the prednisone he received (even though it afforded him dramatic clinical response within 48 hours).

Now then either Mr. Straayer's memory could be sharper on this point, or the physician has perjured himself. The latter point is quite doubtful since throughout the hearing the Deputy Attorney General was present, and subsequently studied the evidence without so accusing the physician.

In the second case cited by Mr. Straayer, the graduate student, a physiology major, received through the Student Health Service a prescription for a brand of prednisone. The prescribing physician was aware of and endorsed the Formulary System. The sworn testimony in the brief explains why Meticorten was noted after the name prednisone. Again, the record shows the same representative so alarmed the student that he too doubted the quality of the hospital product. So much so that he would not use the hospital dispensed prednisone. The representative, a nonpharmacist, then gave him an equal quantity of Meticorten to use instead.

It seems apparent, to this writer at least, that both the allegation that an inferior product was dispensed and the complaint, did not originate with either the physician or graduate student.

Mr. Straayer goes on to mention that the State Board of Pharmacy was contacted. He does not mention that the contact was an informal visit to only one board member in his Philadelphia store (and that the newspaper stories broke the very next day,) and that no formal complaint was lodged with the State Board proper until some four months later. Since only Schering personnel and one Board member knew of this issue, and if as Mr. Straayer's letter notes, "Schering did not release the erroneous story concerning the matter to the press, and as a policy will not discuss pharmacy problems in lay publications," who did?

Peculiar in its own is the striking fact that the Board of Pharmacy cited a registered pharmacist for alleged substitution, solely on the circumstantial evidence offered by Schering. The Board neither gathered nor verified evidence, which I maintain is a highly irregular procedure and one which I believe places the Board in a delicate, if not untenable position. With further respect to untenable positions, I cannot understand how the Board of Pharmacy completely disregarded the two criminal infractions on the part of the Schering representative, (a nonpharmacist) who in sworn testimony admitted to dispensing to a nonphysician, dangerous legended drugs. Admittedly, he violated both the Durham Humphrey Amendment to the Food Drug and Cosmetic Act, and the Dangerous Drug Act of Pennsylvania. Yet the Board nonchalantly overlooked these obvious infractions without so much as a verbal reprimand, let alone demanding a subsequent hearing for his offense.

It is indeed unfortunate that Mr. Straayer did not bring these points into focus and I am certain that we would all appreciate hearing from the Director of a Professional and Trade Relations Department of a large ethical company, an expression of how he can condone the State Board's reluctance to act against an admitted violator of two criminal codes and more important, since the sworn testimony shows no contradictory statement of this violation by any of the 5 Schering members present, (of which Mr. Staayer was one) how he can sanction such illegal, unethical, and dangerous practices on the part of Schering salesmen.

ROBERT C. BOGASH, *Director*

Dated: August 9, 1959
Pharmacy Department
Lenox Hill Hospital
New York, N.Y.

*See "Dear Sirs," AM. J. HOSP. PHARM. 16:323 (July) 1959.

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*Barrett, C. D., Jr., *et al.*: *J.A.M.A.* 167:1103, 1958;
Ibid.: Am. J. Pub. Health 49:644, 1959.

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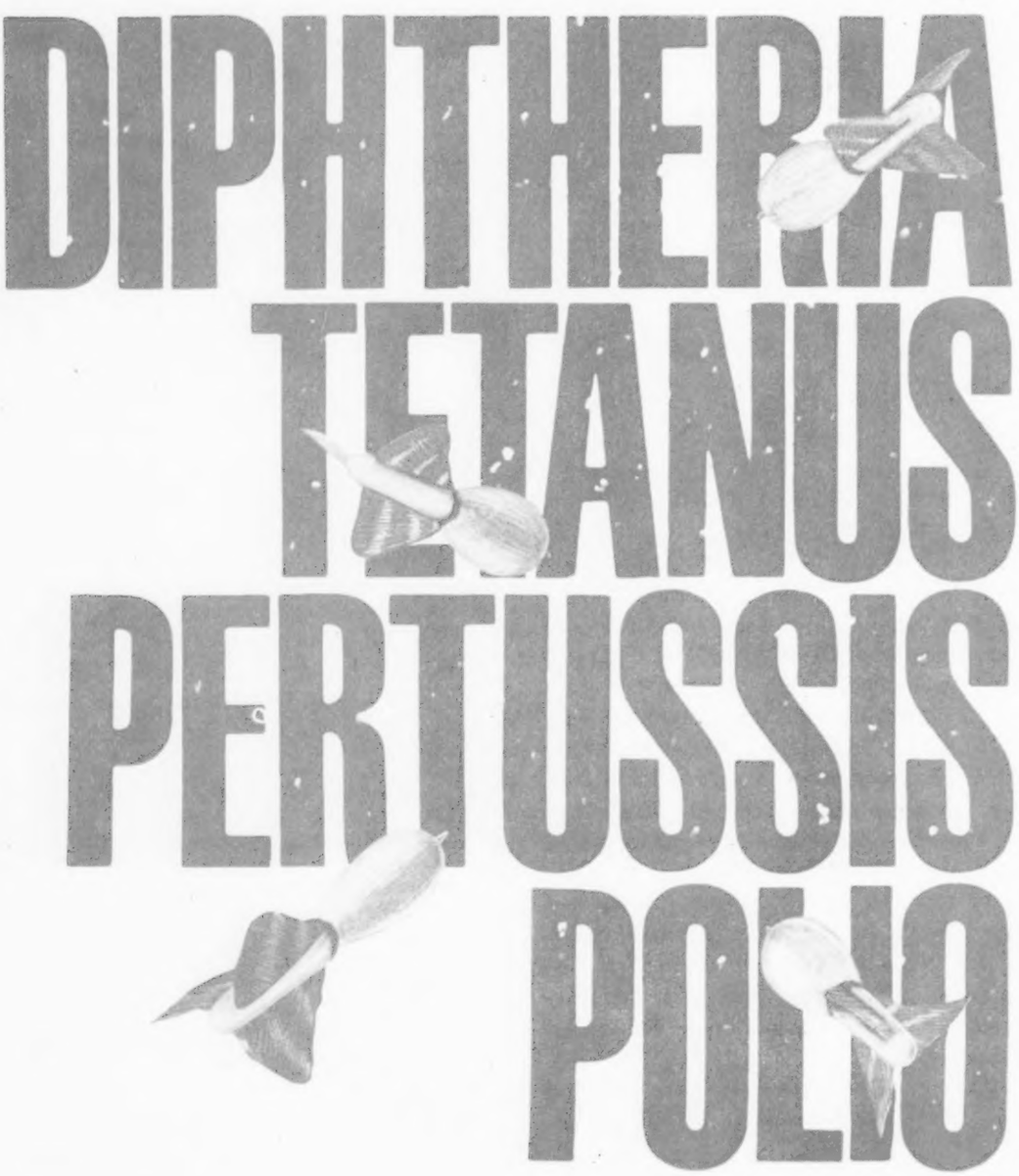


by DON E. FRANCKE

Practical Experience in Hospital Pharmacy

► IN HIS INAUGURAL ADDRESS at the Cincinnati Convention, President Trygstad called attention to the policies of a significant number of boards of pharmacy under which full credit for practical experience is denied those who elect to obtain their internship in hospital pharmacies. It is sometimes surprising to note how long a problem such as this can persist even though it has been called repeatedly to the attention of those responsible. For example, more than a decade ago Dr. Lynwood F. Tice of the Philadelphia College of Pharmacy and Science had this to say to members of District 2 of the Boards and Colleges of Pharmacy:

Our state boards are faced with problems that must be met more objectively than has been the case in some instances to date. It is the primary function and the responsibility of a board of pharmacy to pass upon the qualifications of one who wishes to practice pharmacy and to inspect and approve those places where pharmacy is to be practiced. Only recently have some of the boards realized that, in their failure to include the field of hospital pharmacy, they are not discharging fully their public responsibility.

If the boards of pharmacy do not supervise this area of pharmacy, just who is qualified to do so and who should? Surely not the hospital itself, for if so nothing would prevent any misconduct or deficiencies that it might overlook or condone. Most boards are now convinced that the pharmacy department in a hospital is definitely within their province of regulation; but a more forthright stand and legal clarification of this matter is still needed in some states.

Hospital pharmacy does confront many boards of pharmacy with two major problems that require careful thought and discussion. First, there is the question which has been raised as to the competency of a board of pharmacy to inspect and regulate a hospital pharmacy when no single member is, or ever was, a hospital pharmacist.

Although I am a full professor of pharmacy and have taught pharmacy to some of the now outstanding hospital pharmacists in the United States, I would surely hesitate in professing the ability to evaluate a hospital pharmacy or even to teach a course so named.

Actually, the inclusion of one hospital pharmacist on the board would not only meet what seems to be a justified criticism but it would greatly assist the board in its work. It would make the regulation of hospital pharmacies much easier and effective. Where a change in the law is necessary for such inclusion, steps should be taken immediately and in good faith to accomplish this objective.

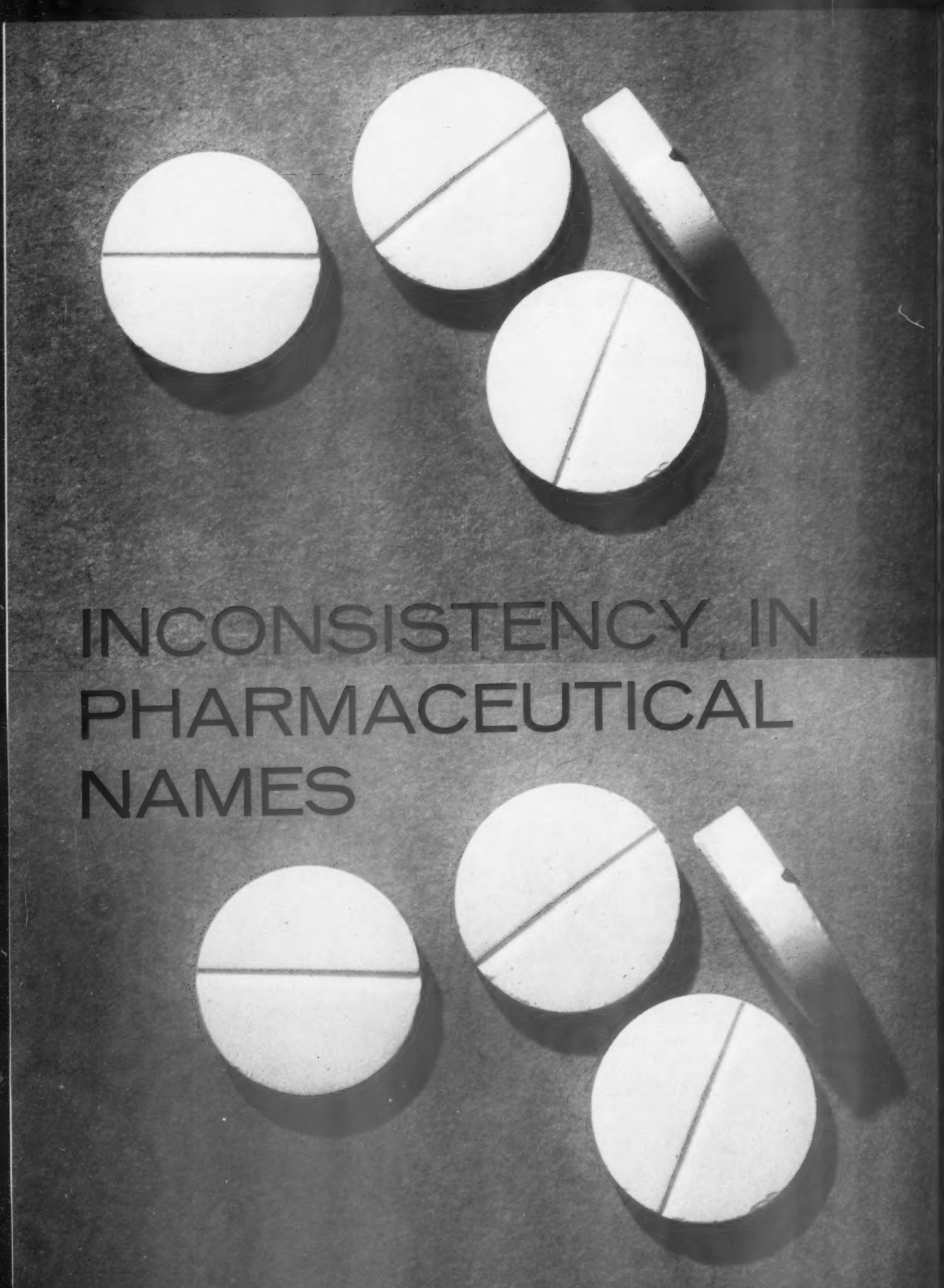
A second problem—and point of contention—is the N.A.B.P. recommendation that only a part of the practical experience requirements may be satisfied by work in a hospital pharmacy. The N.A.B.P. asks that at least six months of a year's practical experience be in retail pharmacy.

It is true that a person whose experience has all been obtained in a hospital pharmacy is not versed in some of the activities engaged in by the retail pharmacist. But the fact overlooked by some of the boards is that their responsibilities begin and end in *evaluating* the *professional qualifications* and activities of the candidate. The granting of a license to practice pharmacy does not carry with it a certificate of business acumen or a guarantee of financial success. I believe that the well-regulated and well-staffed hospital pharmacy is just as satisfactory a place to gain professional experience as a retail pharmacy. Some professional pharmacies today are in essence the counterpart of a hospital pharmacy and experience in these pharmacies is acceptable.

Board members should of course impose the same standards on a hospital pharmacy as on a retail pharmacy from the standpoint of personnel, equipment, and professional service before approving experience obtained there. But to rule out all hospital pharmacies as inadequate for the training of pharmacists is, in my opinion, a decision based upon faulty reasoning. If maintained it will impair the training of specialists in hospital pharmacy and cause ill will without sufficient reason. (*J. Amer. Pharm. Assoc., Pract. Ed.* 8:278, May, 1947.)

Since Dr. Tice spoke these words, the N.A.B.P. has changed its recommendation to allow full credit for experience in hospital pharmacies—but many state boards have failed to change their regulations accordingly and it is rare, indeed, to find a hospital pharmacist named to any board of pharmacy.

Boards of pharmacy, in their eagerness to regulate hospital pharmacies, might well reflect that disenfranchisement of a group of practitioners is not an ideal way to elicit cooperation.


INCONSISTENCY IN
PHARMACEUTICAL
NAMES

C I Lecture

by CHARLES O. WILSON

► MY SUBJECT, "INCONSISTENCY IN PHARMACEUTICAL Names", is not new, as all of you have discussed the use of different names for the same substance. We are so much accustomed to the use of the word "aspirin" for acetylsalicylic acid; "phenacetin" for acetophenetidin; and "boracic acid" for boric acid; and "benzocaine" for ethyl aminobenzoate, that we think little of it. However, when one begins to consider all of the compounds used as therapeutic agents, and then reflects that several names may be available for each, the situation is impressive in its potentiality for confusion. It leaves the health professions with a tremendous problem in identifying therapeutic agents.

CHARLES O. WILSON, Ph.D. is Professor of Pharmaceutical Chemistry, College of Pharmacy, University of Texas, Austin 12, Texas, and co-author of "American Drug Index-1959," Fourth Edition, Lippincott Publishing Company, Philadelphia, Pennsylvania.

Presented at the Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, Cincinnati, Ohio, August 1959.

Confusion Compounded

Some months ago I was examining a product called KL Sea-Rem by Kohlenberg Laboratories of Sarasota, Florida. It was stated to contain methylbromtropinmandelate. This chemical name was not too clear to me, so I wrote to the Kohlenberg Laboratories. A return letter informed me that, "The substance in question is also known as homatropine methylbromide." The point in this particular case is that homatropine methylbromide is an official title in the U.S.P. XV. Why is it not used in connection with KL Sea-Rem?

The product Tetrad produced by E. S. Miller Laboratory lists an ingredient "tetraiodothyronine. This compound is Thyroxine U.S.P. XIV. Why is not thyroxine used on the label?

A pharmacist who really wants to know what he is dispensing and tries earnestly to understand the composition of pharmaceuticals is finding it very difficult. Each agency, association or organization concerned with publications carrying data on therapeutic agents has the legal right to use any name it chooses for almost any therapeutic agent. Authors of papers concerning pharmaceuticals use the name which they happen to know. There is no agency nor law enforcement body which controls non-proprietary names for medicinals. Freedom to use a wide choice of names and chemical nomenclature adds considerably to the difficulty of study in this field.

Pharmaceutical names can be divided into three primary classes, with a fourth, less-specific class.

1. Brand Name
2. Generic Name
3. Chemical Name
4. Other names or synonyms

Brand Name

The brand name, or trademark name, is quite well understood by almost everyone in the health professions. Brand names are always capitalized and should be followed by a superscript®. Although they are not part of the subject of this paper, two terms, "trademark" and "tradename" may be clarified. The trademark relates to a commodity and is synonymous with

brand or proprietary name. "It includes any word, name, symbol, device or any combination thereof adopted and used by a manufacturer or merchant to identify his goods and distinguish them from those manufactured or sold by others."[1] A tradename relates to a business, and is synonymous with the company name.

Generic Name

A generic name, as used in the United States, was developed to supply, for a compound, a term which may be used as the common name for the substance, and thereby to protect a brand name. The determination of a generic name started about 1900 in the medicinal field and became legally important because of a court case about 1911. At that time the American Medical Association introduced the generic name "epinephrine" for the compound trademarked Adrenalin.

In 1917 the Federal Trade Commission required German synthetic drugs to have generic names; for example, phenobarbital for Luminal and barbital for Veronal. By 1920, most pharmaceutical firms started coining nonproprietary or generic names for use with their trademarked names.

The Federal Food, Drug and Cosmetic Act of 1938 requires that the label of a drug bear the "common or usual name." This "common or usual name" is interpreted by the Food and Drug Administration to mean the use of a chemical name of the drug, an accepted synonym, or a coined name now commonly referred to as the "generic name." Really, the word "generic" is a misnomer as used in the drug field; it does not describe a class or genus of drugs—it describes a single drug. The generic name is nonproprietary. In this use, the generic name is the opposite of a more specific name, which is the trademark or brand name belonging to one sole owner.

Brand or trademark names have long been used and registered by copyright. However, by court ruling, some early brand names were "lost" and could, therefore, be used by anyone to designate the substance. They thus became the generic name. Notable examples are aspirin, kerosene, nylon, linoleum and cellophane. If a trademark or brand name becomes commonly used for the substance; that is, if it becomes used as a generic name, the exclusive right of a manufacturer to that name is lost. The brand name becomes a generic name and falls into the public domain.

Purpose

Generic names were devised to prevent the loss of trademark or brand names. Also, it was thought to make identification easier for physicians, pharmacists, veterinarians, nurses, dentists and others in health professions.

Products suited to generic names are single compounds or their salts. To meet the requirements for a generic name, a product must be considered a complete or single chemical entity. Even weak chemical combinations such as aminophylline, bromaleate, dimenhydrinate and pamabrom are suitable. An exception is neomycorsone (brand name - Neosone), which is a mixture of cortisone acetate and neomycin sulfate. The use of a generic name has also been made to include botanical and animal extracts.

It is never justifiable to provide a generic name for a mixture of pharmaceuticals. In addition, the same generic name should be used for all salts, dosage forms and other variations of the parent compound. However, in pharmaceuticals, these rules are sometimes ignored.

A reality often overlooked in pharmaceutical nomenclature is that pharmaceuticals may come to have more than one generic name. A company merchandising a compound is not required by law to use any specific generic name. A number of drug products have been introduced with one generic name and then changed to another at a later date. Another point to remember is that the law does *not* require the use of a generic name. A chemical name (any chemical name) may be used. Several recently introduced products (Trancopal, Caytine, Sycotrol, Cantil) use a chemical name only as a reference.

The Food and Drug Administration states that, "Ordinarily the U.S.P. or N.F. name, or official synonym, is regarded as the common name (generic name) of a drug." This means that if a U.S.P. or N.F. substance had two synonyms, three brand names of this substance could each refer to a different generic name. It does happen.

In still another situation, a compound recognized by the U.S.P., N.F., or N.N.R. (D) may be marketed by a brand name, but referred to only by a chemical name. The chemical name used does not have to be the same as that used in the U.S.P., N.F. or N.N.R. (D). Situations such as these contribute to the difficulty in understanding the relationship of brand name products.

Selection

The selection of a generic name usually originates with the producer of the substance, the formulator, the American Medical Association's Council on Drugs, the Food and Drug Administration, U.S.P., N.F., or the World Health Organization. Each agency may select a generic name of its own choosing. There is some cooperation among these agencies in selecting a generic name.

The Food and Drug Administration points out, "There is no specific requirement in the law that a manufacturer of a new drug select a generic name

for it." Usually, however, the Food and Drug Administration does not participate and knows of the generic name only after advertising has started. A communication received from the Food and Drug Administration, on this point, states, "Our only official interest in the selection of a generic name is that it not be misleading as to the nature of a product and not lead to confusion of one product with another." The American Medical Association will cooperate only if asked by the company, or in conjunction with the N.N.D. or with advertising in one of its journals. In the large majority of the cases, the producer (pharmaceutical manufacturer) determines the generic name. When the American Medical Association considers a name for the N.N.D., it often selects a generic name different from that which was originally used, thus adding to the confusion. The manufacturer does not have to use this new generic name selected by the N.N.D.

In the determination of a generic name there are two approaches: that of the manufacturer who has a brand name to protect, and that of the World Health Organization and other associations such as the American Medical Association, United States Pharmacopoeial Commission and the National Formulary Committee.

Observations of most generic names in use would lead us to believe that manufacturers must have a set of guides for selecting a generic name. Some thinking on the subject used by the manufacturers is expressed by Paul G. Stecker[2] in the *Journal of Chemical Education*. My observations would lead me to believe that manufacturers' guides might read something like this:

1. No suggestion as to the chemical formula.
2. No suggestion as to the use of the compound.
3. No relationship to the brand name.
4. Usually have name composed of several syllables.
5. Best if name is long and awkward.
6. Name should be reasonably difficult to pronounce.
7. Name should not be as "catchy" as the registered proprietary name.
8. Name should not be conducive to memorization.
9. Spelling of the name should not be too easy.
10. If similar molecules have a generic name, the generic name for this one should be different.
11. Even if a common name for the substance already exists, a new generic name might be advantageous.
12. When a generic name is available for a compound in the racemic or d-l form, a different generic name might be used for dextro or levo forms; e. g., chlorpheniramine, amphetamine.

The approach used by associations is indicated by the guides drawn up in 1947 by the Council on Drugs of the American Medical Association, the Committee on Pesticides, and the government group, Interdepartmental Committee on Pest Control. (It is interesting to note that very little has been done in the pharmaceutical field about the control of generic names.) Proposals for a generic name for a pesticide may be initiated by manufacturers, formulators, distributors or recognized non-commercial organizations interested in the proper utilization of the substance. The final selection is based on cooperative consideration by the various industrial, scientific and professional organizations which share a common interest in the employment of a pesticide. Some of these guides are: [4, 5]

1. Name should not conflict with other generic brand names.
2. Name should be short.
3. Name should be distinctive.
4. Name should be easily spelled.
5. Name should conform to accepted scientific terminology whenever possible.
6. Name should apply to the pure, basic chemical in order to avoid multiple and dissimilar names for salts, esters, isomers, homologues, dosage forms, and other variations of the parent compound. These latter variations should use the original generic name as a basis for developing new generic names.

More Than One Generic Name

In the field of pharmaceuticals one of the disturbing things is the use of more than one generic name for the same compound. In this connection, the Food and Drug Administration states that, "Ordinarily the U.S.P. or N.F. name or official synonym, is regarded as the common name (generic name) of a drug." The Food and Drug Administration cannot insist on the use of any specific generic name. In many cases a brand-name product may make references to any one of several "generic" names which are available. Some examples of multiple generic names are:

Pheniramine Maleate N.F., N.N.D. 1959
Prophenpyridamine Maleate, N.N.R. 1950

Chlorpheniramine Maleate U.S.P., N.N.D. 1959
Chlorprophenpyridamine Maleate, N.N.R. 1952
(Chlor-Trimeton—Schering)

Methapyrilene Hydrochloride U.S.P.
Thenylpyramine Hydrochloride
(Histadyl—Lilly)
(Drilitol—Smith, Kline and French)

Pyrilamine Maleate U.S.P., N.N.D. 1959
Pyranisamine Maleate N.N.R. 1950
(Histacin—Walker)
Pyranilamine Maleate
Pyraminyl Maleate
Anisopyradamine Maleate

Methylandrostenediol
Methandriol (in Vistabolic)
Diolostene (in Diolandrone)
Mestenediol (in Stenediol)

Dipyrone
Novalgin
Methylmelubrin
Methampyrone
Phenyldimethylpyrazolone

Diacetylhydroxyphenylisatin
Acetophenolisatin
Diacetoxyphenyloxindol
Phenylisatin
Bis(acetoxyphenyl) oxindol (Prulet)
Acetylphenylisatin
Diacetylhydroxyphenyloxindol
Diacetyldioxyphenylisatin

Desoxycholic Acid
Deoxycholic Acid
3,12-Dehydroxycholanic Acid
(Droxolan—Breon)

Dehydrocholic Acid U.S.P.
Ketocholanic Acid
(Doxychol-K —Breon)
Triketocholanic Acid

Aminoacetic Acid, N.F.
Glycocoll
Glycine

Pseudoephedrine Hydrochloride
(Sudafed—Burroughs Wellcome)
d-Isoephedrine
(Isoclor—Haskell)

Estrone U.S.P.
Ketohydroxyestratriene
Ketohydroxyestrin
Ketodestrin

Estriol
Trihydroxyestratriene

Methamphetamine Hydrochloride, U.S.P.
Desoxyephedrine Hydrochloride
(D-O-E—Breon)
(Semoxydrine—Massengill)
Methylamphetamine Hydrochloride

Ethisterone, U.S.P.
Anhydrohydroxyprogesterone, U.S.P. XIII
(Duosterone—Roussel)

Methscopolamine Bromide, N.N.D. 1959
Scopolamine Methyl Bromide
Epoxytropine Tropate Methyl Bromide

Thyroxine, U.S.P. XIV
Tetraiodothyronine
(Tetrad—Miller)

Methscopolamine Nitrate
Scopolamine methylnitrate
(Pepulcin—Ives-Cameron)

Salicylamide
O-Hydroxybenzamide

Methoxsalen, N.N.D. 1959
8-Methoxypsoralen
(Methoxa-Dome—Dome Chemical)

Dihydroxy Aluminum Aminoacetate, N.F.
Aluminum Hydroxide Glycine
(BEpHAN—Sandoz)
Aluminum Aminoacetate
Aluminum Glycinate

Acetophenetidin, U.S.P.
Phenacetin
Acetphenetidin, U.S.P. X
(Axar—McKesson-Robbins)

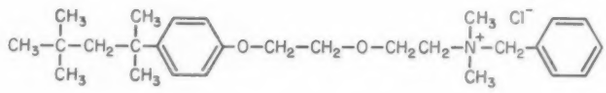
Sorbitol, N.F.
Glucitol
(Probilagol—Purdue Frederick)

Zinc Phenolsulfonate, N.F.
Zinc Sulfocarbolate
(Neo-Kolefan—Buffington)

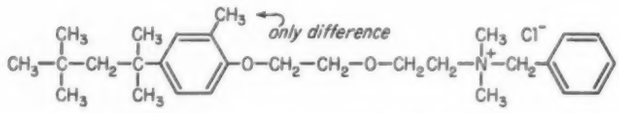
Ethaverine Hydrochloride
Ethylpapaverine
(Papavatral L.A.—Kenwood)

Acetaminophen
N-Acetyl-p-aminophenol
p-Acetylaminophenol
Acetylaminophenol
N-p-Hydroxylacetamide
Dihydroxyaluminum Glycine

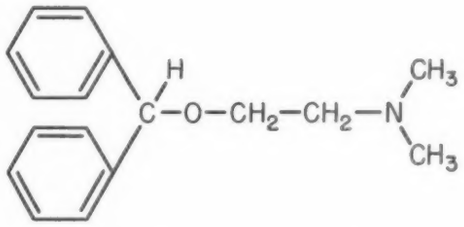
Some examples of *good* generic name correlation:



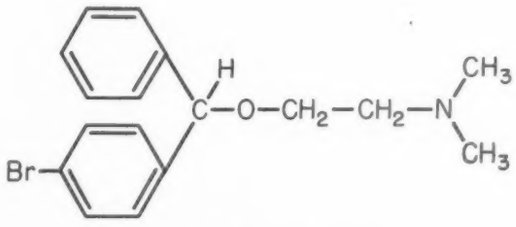
Benzethonium Chloride, U.S.P.



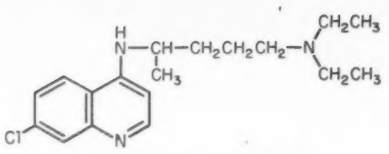
Methylbenzethonium Chloride; N.N.D.



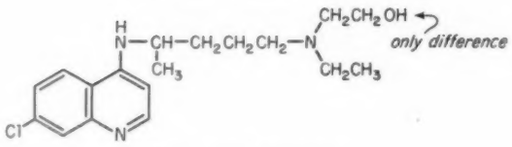
Diphenhydramine, U.S.P.



Bromodiphenhydramine



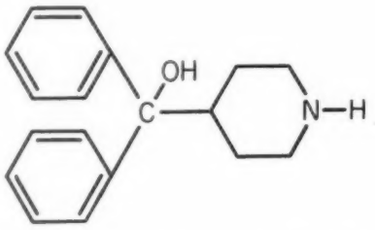
Chloroquine, U.S.P.



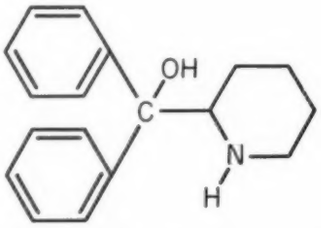
Hydroxychloroquine

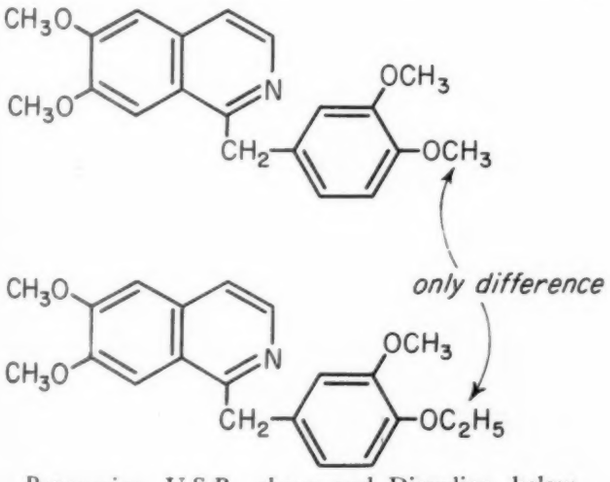
In the selection of generic names for related compounds, many times there is no attempt to express this relationship in the generic name. In some cases there is a good expression of the relationship.

Some examples of *poor* generic name correlation:

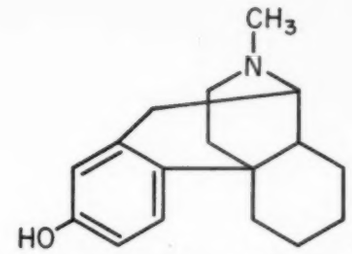


Azacyclonol, N.N.D., above and Pipradrol, N.N.D., below

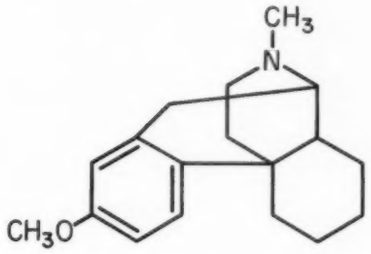




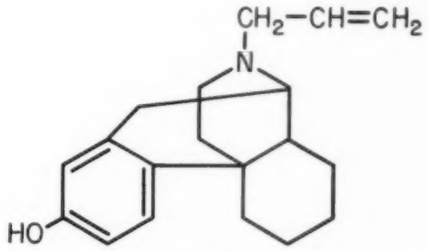
Papaverine, U.S.P., above and Dioxyline, below



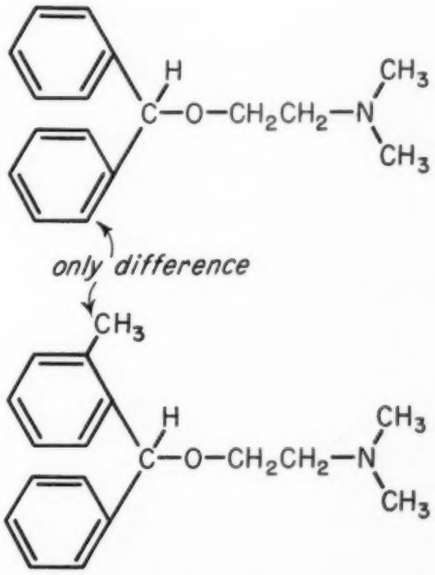
d1-form Racemorphan, N.N.R. 1953
Methorphinan
1-form Levorphanol, N.N.D. 1959
1-form Levorphan, N.N.R. 1954



d-form Dextromethorphan, N.N.D. 1959
d-Methorphan

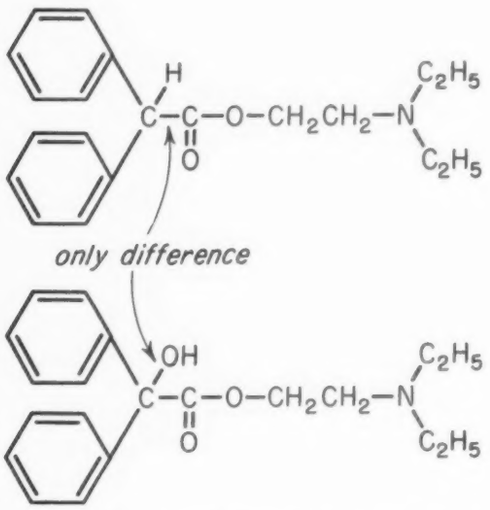


1-form Levallorphan, N.N.D. 1959



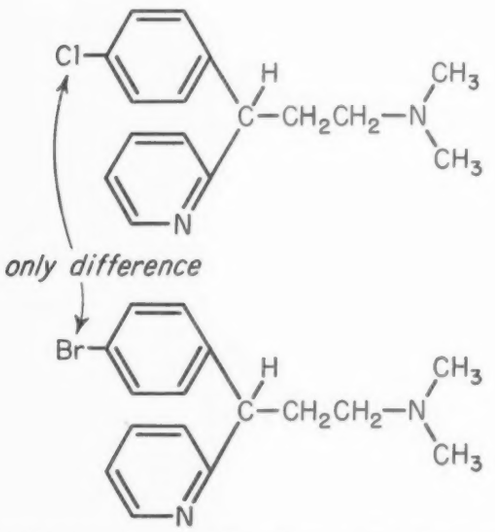
Diphenhydramine, U.S.P., above and Orphenadrine, N.N.D., below

Trasentine has been available for years and is referred to as adiphenine. Just recently Suavitil was placed on the market with the generic name benactyzine. In this case there seems little reason why the generic name could not have been hydroxy-adiphenine.



Adiphenine, above and Benactyzine, N.N.D., below

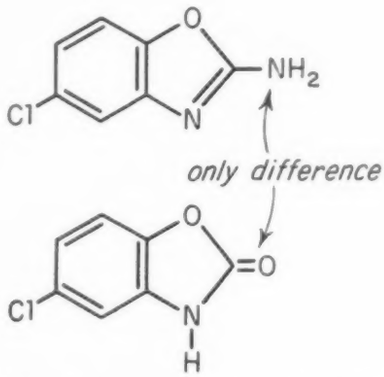
Chlor-Trimeton was available first (1951) and is now in the N.N.D. under the generic name chlorpheniramine. Dimetane was marketed in 1957, using parabromdylamine as the generic name. In Dimetane, the chlorine of Chlor-Trimeton has been replaced by bromine. Why could not the generic name have been brompheniramine?* In the case of Benadryl/Ambodryl, the generic names are diphenhydramine/bromodiphenhydramine. These agents differ only in that Ambodryl contains bromine.



Chlorpheniramine, U.S.P., above, and Parabromdylamine, below

*It is now, *J. Am. Med. Assoc.* 170: No. 2, 194, 1959.

Flexin and Paraflex are similar structures differing only in amine group and carbonyl group. The generic names zoxazolamine and chlorzoxazone are misleading as to relationship. Since Flexin was available first, the generic name for Paraflex could have been zoxazolone.



Zoxazolamine, N.N.D., above and Chlorzoxazone, below

Even though a compound has been used for years under brand names, a company marketing a new brand name of the compound can select a new generic name of its own choosing. A case in point is Dilyn, a brand of glyceryl guaiacolate, but designated by Elder as a brand of methphenoxydiol. When this was brought to the attention of the Food and Drug Administration its answer was "We had not encountered methphenoxydiol used as the common name for glyceryl guaiacolate. We don't know where the name originated." Glyceryl guaiacolate has been used for years by Robins in Robitussin; by Schering in Coricidin Syrup; by White in Guaiatussin and by Columbus in Guaiahist. It has been referred to as guayanesin for over five years.

Robins and Company marketed the glyceryl guaiacolate carbamate as Robaxin and used the generic name methocarbamol. For simplicity's sake this new generic name seems unnecessary.

There are occasions when the Council on Drugs decides to change a generic name. In the case of Ritalin (Ciba) the first name used was methylphenidylacetate hydrochloride, but in the N.N.D. 1958 it was changed to methylphenidate. Ciba Pharmaceutical Company, at the time, accordingly changed and also used methylphenidate in connection with Ritalin. In 1952 the N.N.R. name for Chlor-Trimeton was chlorprophenpyridamine maleate, but, in the N.N.R. 1955, it was changed to chlorpheniramine maleate. The U.S.P. XV also uses chlorpheniramine maleate. Schering has, however, continued to use chlorprophenpyridamine in connection with Chlor-Trimeton. Our legal minds might like to speculate on the point that, since Chlor-Trimeton does not refer to the

U.S.P. XV title, is it necessary for the product to conform to the U.S.P. standards?

It is interesting to observe that, when Polaramine (Schering) was marketed, the generic name used was dextro-chlorpheniramine. Polaramine is the dextro isomer of Chlor-Trimeton. The use of two generic names does not help in understanding what these two products are.

There are, currently used, a number of products which are known only by the brand name and the chemical name. This makes it more difficult to correlate brand names of the same substance and it may also be legally dangerous for the company. Take the case where a compound had been used for years under the brand name and no generic name was ever used. Lakeside Laboratories has had on the market for years a product sold as Piptal, referring to it by its chemical name of N-ethyl-3-piperidyl benzilate. Recently Promyl, which is the same compound, was introduced by Crookes-Barnes, as a brand of pipenzolate. In most of the Crookes-Barnes literature and labels, no chemical name was mentioned. Lakeside Laboratories had never coined a generic name, but now use pipenzolate.

In one situation, we find a product, ethaverine, which has been the generic name for years, marketed under the brand name Neopavrin, by Savage Laboratories. Reference is made to only the chemical name: diethoxy (diethoxybenzyl)-isoquinoline hydrochloride. The choice of using a generic name or a chemical name evidently rests with the manufacturer.

Chemical Name

The third name that a pharmaceutical may have is the chemical name. The Federal Food, Drug and Cosmetic Act of 1938 requires that the label of a drug bear the "common or usual name." This is interpreted to mean a chemical name, an accepted synonym or a coined generic name. According to the law, the Food and Drug Administration cannot insist on a particular system of nomenclature for the chemical name so long as the one used by the manufacturer does characterize the compound. The fact that the law merely requires the use of a chemical name, rather than a specific chemical name developed by specific rules such as those of Chemical Abstracts (American Chemical Society) allows for considerable confusion in establishment of relationships among medicinal compounds. As you know, most chemical compounds may be named chemically in several ways. The law does not require that the rules of the American Chemical Society be followed. Ethyl alcohol may be named several ways: (CH_3CH_2OH), ethyl alcohol, hydroxyethane, methylcarbinol, hydroxymethylmethane and ethanol.

Neither the pharmaceutical industry nor the associations of pharmacy have made any effort to standardize chemical nomenclature. Many companies use for the compounds chemical names that are quite "original." Such a name as 1-piperidine ethanol benzilate hydrochloride (Sycotrol by Reed and Carnrick) tends to mislead and confuse those concerned with drugs.

When the Geneva nomenclature originated in 1892, there was an attempt to regulate or limit the use of a chemical name. Rule number 1 was, "In addition to the customary methods of nomenclature there shall be established for each organic compound an official name, which will enable it to be found under only one entry in indexes and dictionaries." The sixty-seven years which have passed have not seen this rule number 1 realized.

It is interesting to note that the U.S.P., N.F., N.N.D. and the World Health Organization sometimes each express the chemical name for a pharmaceutical compound in a different way. There are several instances in which the same compound has a different chemical name in the U.S.P. and N.N.D., or in the N.F. and N.N.D. Likewise, the manufacturer of a brand-name product recognized by the U.S.P., N.F., or N.N.D. may use yet another chemical name. Such a state of affairs seems wrong in a profession which has many other problems that are not so easy to correct.

Examples of Multiple Chemical Names

Tigan (Hoffmann-La Roche) trimethobenzamide
Company name
4-(2-dimethylaminoethoxy) -N-(3,4,5-trimethoxybenzoyl benzylamine hydrochloride
Chemical Abstracts
N-(dimethylaminoethoxybenzyl)-3,4,5-trimethoxybenzamide

P&S Liquid (Chester A. Baker Laboratories)
Company name
Phenylic acid
U.S.P. name
Phenol

Sestron
Profenil (C. D. Smith)
Bis-*gamma*-phenylpropylethylamine citrate
Antispasmin (Raymer)
N-ethyl -3, 3′-diphenyl dipropylamine citrate

Brompheniramine
World Health Organization
(3-p-bromophenyl-3-pyrid-2′-ylpropyl) dimethylamine maleate
N.N.D. 1960 (*J. Am. Med. Assoc.* 170: No. 2., 194, 1959)
2[p-bromo-alpha-(2-diethylaminoethyl) benzyl] pyridine maleate
Robins and Company - parabromdylamine, Dimetane
1-(p-bromophenyl-1-(2-pyridyl)-3-dimethylamino-propane maleate

Chlorcylizine Hydrochloride N.N.D. 1959
N.N.D. 1959
1 (*p*-chlorobenzhydryl)-4-methylpiperazine hydrochloride
Burroughs Wellcome - Perazil
N-methyl-N′-chlorobenzhydryl piperazine hydrochloride

Penthienate Bromide
N.N.D. 1959
2-diethylaminoethyl-alpha-cyclopentyl-2-thiopheneglycolate methobromide
Winthrop - Monodral Bromide
2-diethylaminoethyl -2-cyclopentyl-2-(2-thienyl) hydroxyacetate methobromide

Chlorpheniramine Maleate
U. S. P. and N.N.D. 1959
2-p-chloro-alpha- (2-dimethylaminoethyl) benzyl pyridine maleate
Schering Corporation
1(*p*-chlorophenyl) -1-(2-pyridyl-3-dimethylamino-propane maleate

Sodium Perborate N.F.
Amosan (Knox)
sodium peroxyborate[6]

Acetyl Bromodiethylacetylurea
Winthrop - Abasin - acetylcarbromal
Schenley - Sedamyl - acetylbromdiethylacetylcarbamid

Understanding our present-day medicinal products would not be too difficult if consistency in nomenclature could be achieved. We in pharmacy should have some control over which generic names and which chemical names are going to be used. The Food and Drug Administration should have this power of regulation and should work closely with the professions of pharmacy and of medicine. There should be designated, for each pharmaceutical agent, one "official" chemical name and one "official" generic name.

I strongly recommend that the incoming president of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS seriously consider the establishment of a permanent committee concerned with the problem of pharmaceutical nomenclature.

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The Hebrew Home for the Aged, Bronx, N. Y.

Extending pharmacy service in THE HEBREW HOME FOR THE AGED

. . . the national picture and one Institution's progress

by JOEL YELLIN

► I HAVE OFTEN WONDERED HOW MANY OF THE country's large old age homes have hospital pharmacies. I have never met anyone who had any answers to this, nor have I read any figures or reports giving this information. I have been curious about it ever since the Spring of 1957 when I was interviewed for my present position with The Hebrew Home for the Aged. I was quite hesitant about taking a position in a pharmacy in an old age home. I had not spent too much time in hospital pharmacy, but I did know that I wanted to continue. However,

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Presented to the American Association for the Advancement of Science—Np Section, 125th Annual Meeting, December, 1958, Washington, D.C.

this new position at first did not seem to hold much interest, nor satisfaction, nor to be much of a challenge. It certainly seemed to be a far cry from the type of hospital work that I knew. However, in retrospect it has proved to be most interesting, satisfying and indeed challenging. The philosophy behind the Home and work going on there and, if you will, in the field of geriatric hospital pharmacy, are some things that I am watching amplify and expand, and am trying to grow with.

The Hebrew Home for the Aged was founded in 1915 actually as a "Shelter" and was incorporated as an independent non-profit "skilled" Old Age Home in 1917. At that time we had two brownstone houses in the Harlem section of Manhattan. We remained there for over thirty years. In 1921 Rev. Isaac Spira became Executive Director, and although now emeritus, is still active in our religious and social affairs. He has told me that from the beginning physicians served the Home on a voluntary basis and that each day one of a small group of doctors would come in to see the patients. He purchased some medical supplies through jobbers, some through a local pharmacy. In January 1946, at a dinner attended by a nucleus of twenty people, plans were formulated for the construction or purchase of new buildings to make the Home a real haven for the aged, with complete facilities and care. Soon after that dinner, arrangements were made to acquire the old "Daddy" Browning estate in the Bronx. However, we then located and purchased our present property. It contained then, as now, a five story main building and seven three-story cottages. In April 1951, thirty-nine residents were moved from downtown into two renovated floors of the main building. It was surely a far cry from what they had known. Our property is on the Hudson River on the northern border of New York City overlooking the Palisades. It consists of about nineteen acres situated in the residential Riverdale section of the Bronx. It was not long before the main building was filled and the cottages were being re-built and opened. Pharmacy service was still being obtained from the outside, but they soon found it advisable to hire a pharmacist on a part-time basis.

As our population grew, so did the desire to expand the medical care. In the last eight years, the Home has steadily grown physically and in the scope of its medical program, with pharmacy being but one addition to it. Various clinics were organized and formalized. A Clinical Laboratory was begun, Medical Records, physiotherapy and x-ray procedures initiated. There is now a minimum of from one to

three house physicians on duty at all times. We have a permanent attending staff of over fifty physicians plus a full-time medical director. We offer just about everything a general hospital does with but one important exception—an operating room. However, within a matter of months we are going to be expanding even further, and foremost in our plans is the addition of operating facilities. Less than a year ago we opened our new million dollar infirmary building and looking back, at the less than two years I have been at the Home, we are every day carrying ourselves along on what seems to be a perpetual ever-moving program of almost daily growth and improvement.

Pharmacy Area

In mid-April of 1958 we moved into the new three-story Infirmary wing. The two upper floors contain rooms of from one to six beds with a total bed capacity of 102. On each floor is a central nursing station, each having a fairly inclusive supply of the pharmaceuticals stock at the Home. The second floor connects with the main building and has a dining area for ambulatory patients. The third floor has an airy lounge and adjoining sun porch. The first floor contains the various clinics, examining and treatment rooms, the Laboratory, Radiology and Physical Medicine Departments, various offices, etc. and last but not least, the Pharmacy area. This encompasses the Pharmacy proper, our own storage room, and the Central Supply with a still and autoclave. Standard Schwartz System cabinets are used plus other wall units and conventional stainless steel and stone bench and tablework. It is certainly different from what existed when I first started at the Home.

My original room fitted what in the past all too often befell the pharmacy, or I should say "Drug Room." It was a converted pantry and while it may have been ample for "pill counting" it surely was not conducive for an efficient hospital pharmacy operation. However, the Home must have been well aware of its drawbacks as witness the area allotted the Pharmacy Department in the new building. With but a few minor changes in the original plans, we now have what I consider to be a very workable physical layout and one in which the Home can justifiably take pride.

At the present we have a bed capacity of 430. Our median patient age is seventy-eight, the youngest of the residents is sixty-five, the oldest ninety-nine. A large percentage of them are welfare cases. It is probably no exaggeration to say that few of our residents ever received the medical attention they now get. All medical care, including Pharmacy service is given without any special charges.

In addition to our present facilities, we are beginning conversion of some of the rooms in the main building on the floor that once was the Infirmary into a semi-custodial area. Although all the cottages and the other floors in the main building are under the close supervision of attendants, this area will always have nursing personnel in it. Our plans call for the equipping of a nursing station, and the possible inclusion of a dining room. The residents here will be as the term implies—semi-custodial. They will include those who require more than what we consider routine medical attention and the chronically ill who do not have to be permanently in the Infirmary. They will be serviced by the Pharmacy as infirmary patients rather than on an outpatient basis. (We consider as outpatient, any resident of the Home that is not a permanent Infirmary patient.)

Floor Stock Drugs

As mentioned, the nursing station floor stocks are kept fairly complete with but token amounts of "inactive" drugs and proportionally larger supplies of currently used medication. The stock is issued in uniform dark-colored glass bottles so as to minimize any possible error caused by, when in a hurry, selecting a bottle because of the appearance of the drug, rather than by reading the label. All therapeutic classifications of drugs used are represented, thus making the stations emergency suppliers to each other. This advantage, plus the fact that the cabinet area was available, were two of the reasons we did not aim to minimize the items on floor stock. We keep inventories of the infrequently prescribed items to a minimum, and feel it is best to set up the stations as we did, rather than have individual prescriptions for many items being sent to the Pharmacy. However, with narcotics and drugs on clinical trial, we do maintain our orders on an individual patient basis.

Station requisitions are routinely filled three times a week. All medical supplies are obtained through the Pharmacy. We also handle the purchase of surgical garments, dental and optical needs. At the present, the same sheets and procedures are used for Pharmacy and Central Supply items. In general, standard hospital procedures are used in respect to supplies to the floors.

Our residents classified as outpatients are cared for at the general clinics which we hold daily, just as any hospital cares for the population of its environs. Some of the clinics such as Dental, Ophthalmic, and Podiatry are held on a weekly basis. All other clinics such as ENT or Gynecology are called as they are needed.

"Outpatient" Prescriptions

The Pharmacy fills all Outpatient Department prescriptions directly from the patients' clinic charts.

We have been averaging 1200 to 1300 outpatient drug orders a month. Due to the advanced age of our residents, our policy has been that, ideally, most of the patients should not have their medications in their own possession but should have them administered by the nursing staff as would a hospitalized patient. Thus, it is not left to the resident to remember to take his digitalis, tolbutamide, chlorothiazide, reserpine, etc. With over 300 aged ambulatory patients, we feel that despite the amount of extra work entailed our system is justified medically, morally, and economically.

Very basically our procedure is as follows. We set up a separate nursing station area for Outpatient Department medication. The items stocked are added to and deleted as current demand deems necessary so that they account for about 65 percent of the pharmaceuticals being prescribed in the clinics. Each week day when Outpatient Department charts are received in the Pharmacy, regular individual prescriptions are filled for any items that are not in the Outpatient Department floor stock. For the drugs that are in Outpatient Department stock, a standard medication ticket is made out in the Pharmacy with the date, patient's name, drug, directions, and expiration date. The tickets, plus the prepared prescriptions are sent to the station. From this point they are handled by the nurse who will first prepare additional medication tickets for those orders which have been dispensed in prescription form. Then regular medication trays are prepared with the patient's individual dose "poured" in disposable souffle cups. The medication is administered at regular hours in an area through which the residents must pass as they go to and from the main dining room. Certain attendants, or aides, assist the nurse with the drug administration and with any special orders or procedures that may be called for. In any case where the patient regularly refuses medication, or when there are any questions in reference to the medication, notice is sent to the Pharmacy. In this way we act as a relay between the physician, nurse, and patient and can refer questions and residents to the clinics when necessary.

There are numerous things that might perhaps be considered a bit astray of the activities in which a pharmacy in a general hospital is involved but which, I believe, can be well within the field of interest for a hospital pharmacist in an institution such as the Hebrew Home for the Aged. I do not feel that it is outside my sphere of work to participate in anything that concerns the health of the patients at the Home. My primary job is three-fold: taking charge of the Pharmacy, Central Supply, and Medical Purchasing. But as our Home is really like a small community, by being active in various aspects of it, I feel I can best do my main job and still be of some assistance in many of the numerous areas which affect the health of our residents. I try to work as closely as possible with Dr. Norman N. Frenkiel, our Medical Director, and to capitalize on the excellent opportunities that I have to utilize the close contact I keep with other medical and paramedical services. In other words, I have tried to develop the Pharmacy Department as an additional means of achieving communications and cohesion in some of the work which goes on at the Home.

Current Projects

One of my main projects at the moment is to put the finishing touches on our Formulary. It includes monographs that indicate clinical applications, doses, cautions, various tables, and an expanded cross-index. I have tried to develop it as a part of the Pharmacy's educational program, rather than as just a drug inventory for the physician.

Several other programs either completed or past the "just planning" stage are the establishment of new floor stock requisition and narcotic and barbiturate control procedures, the development of a reference library, and a new routine for pharmacy accounting and inventory. Some of the things still in the planning stage are the initiation of new emergency supply kits and a poison control plan, and participation in a general safety program for the Home. Expansion of the limited manufacturing and pre-packaging will continue. I plan to produce more of the every day items which our patients like to have; for example, a body rub, hand cream, products for dental care and cold cream. With the still and autoclave in my department, plus the use of a bacteriostatic filter, many additional ophthalmic products can be made.

Because of the growth of the Home and the interest of some of our staff and the Medical Director in the expansion of clinical research, this is another area for future development. Here there is vast room for work. Research in geriatrics is at an all time high and will unquestionably be a field which will be most active and most fruitful. In the light of recent articles in professional and lay publications, it is getting almost redundant to state that there are today about 15 million people over the age of sixty-five.

National Importance

Within the last few years, we have seen a new and greater emphasis being placed upon geriatric health facilities. There is a nationwide growth in the number of nursing homes for the elderly. Be they homes with twenty beds, or larger institutions with five hundred or more beds, they need some type of pharmacy service. Indeed, I feel that pharmacy as a profession is

obligated to take positive steps towards seeing that this need is adequately fulfilled. My personal interest is especially in relation to larger institutions in which we can justify the establishment of suitable hospital pharmacy departments. This as opposed to the equally important challenge of establishing some type of arrangements whereby smaller homes and small hospitals can obtain pharmacy consultation and servicing. But where does one start?

First I feel we must know where we stand with the present larger institutions. What is our present status? Quite subjectively, I would like to know how many geriatric institutions such as The Hebrew Home for the Aged now have hospital pharmacies. What is the scope of their activities? What are the procedures and routines they follow? I have found it quite difficult to get much information to help satisfy my own curiosity. So here, I think, is a logical place to start. But how and by whom?

Role of ASHP

Perhaps, a working committee formed through some representative national organization. I would suggest that the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS might be the most logical group to undertake such a job. There might be representatives on this committee, or at least a direct liaison between it and the American Hospital Association and the Joint Council to Improve the Health Care of the Aged. This group was formed on April 8th, 1958 to "(1) identify and analyze the health needs of the aged; (2) to appraise available health resources for the aged; and (3) to develop programs to foster the best possible health care for the aged regardless of their economic status." The Council consists of representatives from the American Dental Association, the American Hospital Association, the American Medical Association, and the American Nursing Home Association. There are also other groups, both governmental and/or sponsored by professional associations that are currently studying the growing health problems of our expanding group of Senior Citizens. No matter who initiates it, or what liaisons may be established, hospital pharmacy as a professional group should also start to survey and delineate what is today the optimum service we can give to old age institutions. How can these present services be expanded? How can we benefit the individual patient? We must be a part of those groups which are today formulating new ideas and guides for future developements in this field.

If the ASHP had a committee that was actively surveying the present situation and formulating some type of recommendations and guides, it most likely would have had more recognition at some of the recent conferences on our aged. At the Conference on the Care of Patients with Long-Termed Illness last May, suggestions were put forward concerning a means for general hospitals to make available their services, including pharmacy, to para-hospitals. Also recommendations were made for listings of para-hospitals, this listing program being approved by the American Hospital Association's Board of Trustees a few months ago (November 24th, 1958). Of the fifty-five Conference participants at this meeting, which was sponsored jointly by the United States Public Health Service and the American Hospital Association, there were no pharmacists representing our profession. At the National Conference on Nursing Homes and Homes for the Aged, sponsored in February 1958 by the Public Health Service, the published list of participants numbered 201 delegates from just about every profession and field concerned, with but one person from hospital pharmacy. It is time we began to take some positive actions, one possible step being the formation of a committee, such as I mentioned, to survey the present status of hospital pharmacy in the field of old age homes. We will then know just where we stand quantitatively and perhaps qualitatively, something which I do not believe we really know now. If done through the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, a beginning can be taken towards organizing and bringing into communication through the ASHP JOURNAL, the pharmacists that are now serving in old age homes throughout the country. This would be a start. I have often thought about doing something in the New York area to contact pharmacists in situations similar to mine. I have spoken to several people both in and out of the pharmacy profession and was advised by more than one person that someone acting as an individual would probably not make too much progress. What may be the best course, and this is something that I hope might soon develop, is for an ASHP Chapter to undertake a local survey of old age and nursing homes, which might serve as a model for something on a national basis.

While the New York area probably has a comparatively large number of pharmacists practicing in institutions such as mine, I seldom meet any with whom I can discuss some of the problems and circumstances peculiar to this type of operation. Perhaps, if the truth be known, there would not be enough pharmacists employed in old age homes to warrant any extensive effort towards organization or liaison. Maybe I am a few years ahead of myself; however, even if this be so, I feel there should be enough interested people to get something started, something that will be built upon. For surely as institutions such as the Hebrew Home for the Aged grow, and there seems no doubt that they will, hospital pharmacy has an obligation to, and I am sure will be, an integral part of the development of health facilities for our Senior Citizens.

Commonwealth of Pennsylvania
Department of Public Instruction
State Board of Pharmacy
Harrisburg, Pennsylvania

State Board of Pharmacy vs. Joseph V. D'Ambola

ADJUDICATION AND ORDER

► THIS CASE INVOLVES THE QUESTION OF SUBSTITUtion of dangerous drugs by a pharmacist in a hospital pharmacy of which he is the registered manager. The case arose on complaint of the Schering Company, pharmaceutical manufacturer. The company produced evidence to show that the hospital pharmacy in question filled physicians' prescriptions not with the trade or brand name drug or drugs called for in said prescription but with other drugs of the alleged identical chemical content.

In June of 1958, Dr. Leonard H. Shapiro presented a prescription to be filled calling for meticorten; a brand name drug. Instead, it was filled with an alleged inferior drug. Likewise, in June, 1958, a prescription calling for meticorten was filled with an alleged inferior drug, for one Harvey K. Miller. No harmful effects on the patients were reported.

The hospital administrator testified on behalf of the pharmacist pointing out that the physicians prescribing the brand name drugs in question had, as a condition of being on the staff of the hospital, signed a general consent that the hospital pharmacy and therefore, the responsible pharmacist, had the right to substitute other drugs from a list or formulary compiled by the hospital formulary committee.

EDITOR'S NOTE: No editorial changes have been made in the above copy. The material has been printed as submitted.

The State Board of Pharmacy, when complaint was made to it by the Schering Company, cited the pharmacist for suspension or revocation of his registration as a pharmacist on the ground of unauthorized substitution. Hearing was held on December 8, 1958. (sic).

Present at said hearing were the following:

Sol Turnoff, Chairman
Jacob H. Katz, Board Member
Dorothy Williams, Board Member
Harold Blid, Board Member
Dominic Manganiello, Board Member
George W. Schroeck, Esq., Assistant Attorney General
Allan S. Kushen, Esq., for the Schering Corporation
J. Warren Brock, Esq., for Respondent
Joseph V. D'Ambola, Respondent
Ronald H. Schissler, witness for the Board
George C. Straayer, witness for the Board
Leonard H. Shapiro, witness for Respondent
Martin Fuchs, witness for Respondent
Joseph R. DiPalma, witness for Respondent
Harvey I. Miller, witness for Respondent
Charles S. Paxson, Jr., witness for Respondent
James M. Smith, witness for Respondent

Discussion

The State Board of Pharmacy called Ronald H. Schissler as its first witness. He was identified as being a hospital representative for the Schering Corporation, a pharmaceutical manufacturer. He described his duties as a hospital representative as that of calling on staff physicians, residents, interns and other professional personnel in the hospitals of Philadelphia, the teaching hospitals, which included Hahnemann Hospital. N.T. 9,

He testified that he visited Hahnemann Hospital on or about June 25, 1958. N.T. 9. He went on to say that at that time he encountered Dr. Harvey I. Miller of the physiology department and found out that the hospital pharmacy had prescribed meticorten tablets to him. Upon examination of said tablets, he discovered that they were not meticorten. N.T. 10.

The label on the box containing the tablets was marked "meticorten 5 mg." N.T. 10. Dr. Miller had not been informed by anyone in the pharmacy that the tablets given to him were not meticorten. N.T. 11.

The box containing two white pills, identified as being the same box containing these two pills, was received into the record as Board Exhibit No. 3. N.T. 11.

A letter from a Dr. Leonard H. Shapiro, addressed to Mr. Ronald H. Schissler, was introduced into the record. N.T. 13. The letter requested Mr. Schissler to meet Dr. Shapiro at the latter's office. N.T. 13.

The witness stated that when he went to Dr. Shapiro's office, he was informed by him that a Dr. Marvin Hand, Chief of Neurology at Hahnemann Medical College, had written a prescription for 40 tablets of meticorten which had been filled at the Hahnemann Hospital pharmacy and that he wanted the witness to replace these tablets because they were "all eroded and scored and powdery." N.T. 14.

Schissler testified that the tablets shown to him by Dr. Shapiro were not meticorten tablets. N.T. 14.

The label on the box had "meticorten, 5 mg." on it and underneath, "prednisone." N.T. 15. It was introduced as Board Exhibit No. 5.

On cross-examination, counsel for respondent elicited the information that the laboratory analysis of the drugs contained in Exhibit No. 3 contained 108.1 per cent of what it was supposed to contain. The laboratory analysis was introduced into the record. N.T. 17-18.

So too, the laboratory report of Exhibit No. 5 was likewise introduced and showed that the drugs therein contained 91.2 per cent of 5 mg. prednisone, which the prescription had called for. N.T. 18. The report on both exhibits indicated that the drugs were not Schering Corporation products. N.T. 18-19. The laboratory reports were introduced as Board Exhibits 6 and 7. N.T. 19.

George C. Straayer was next called as a witness for the Board. He was identified as the director of trade and professional relations for the Schering Corporation. N.T. 29.

He described his duties as the investigation of complaints of alleged substitutions by pharmacists of products other than those of Schering manufacture when presented with prescriptions or orders for Schering products. N.T. 30.

He testified that on or about August 28, 1958, Mr. Harold N. Torkelson, Schering Corporation's Field Sales Manager, showed to him Board Exhibit No. 5. N.T. 30.

He further testified that on or about September 4, 1958, he called on respondent, Mr. Joseph V. D'Ambola. N.T. 30.

He testified that he and Mr. Schissler confronted Mr. D'Ambola and charged that he was dispensing

"some brand of prednisone when meticorten prescriptions are written, and labeling those prescriptions as meticorten." N.T. 31. This, he stated, D'Ambola denied and explained that the hospital formulary operated under the formulary system. N.T. 31.

Dr. Shapiro was called as a witness for respondent. He testified that he was an obstetrician and gynecologist connected with Hahnemann Hospital as an instructor on the hospital staff. N.T. 41-42.

He testified that he had consulted Dr. B. Marvin Hand, professor of neurology at Hahnemann Medical College and Hospital, and prescribed meticorten. N.T. 43.

He testified that he had then requested the meticorten from D'Ambola in person and was told that the pharmacy did not carry meticorten. N.T. 44.

He further explained that he understood about the hospital's formulary system and that when he accepted the position on the hospital staff he agreed to the regulations, including the formulary. N.T. 46.

Dr. Shapiro's testimony appears to be contradictory in that he testified he received the drugs from D'Ambola on a loan basis and was told they were not meticorten, yet he also stated he asked the name of the Schering representative so he could return the drug loaned. N.T. 50-61.

Asked why he asked for the name of the Schering representative, the witness answered, "A. So I could get a supply of medication to return the amount of medication given to me." N.T. 52.

Since meticorten is the Schering brand name, it appears obvious from the behavior of the witness that he was under the belief that he had received the Schering product, else the witness would hardly have asked for the name of the Schering representative to get a supply of meticorten to replace the drugs he had received despite the fact he testified at the hearing that he knew he was not getting meticorten. N.T. 52.

The witness further testified that it was the Lilly Company representative who told him that meticorten was a Schering product which prompted the witness to request from the pharmacist the name of the Schering representative. N.T. 57.

There was no testimony that the prescribing doctor had been consulted relative to the substitution which admittedly took place.

Dr. Martin Fuchs, witness for respondent, testified that he was a physician, also employed by the hospital as physician in charge of student health. N.T. 69.

He testified that Respondent's Exhibit 2 was a prescription written by him for Harvey I. Miller calling for "Meticorten, 5 mg." N.T. 69.

He likewise testified that as far as he was concerned he had subscribed to the formulary system in practice at the Hahnemann Hospital and that the pharmacist was authorized to substitute by reason thereof. N.T. 70.

Respondent next produced Dr. Joseph R. DiPalma, professor and Head of the Department of Pharmacology, Hahnemann Medical College and Hospital. He testified that the purpose of the formulary system was to insure the proper use of drugs in the hospital, and also to simplify and to make the use of drugs less expensive to the patient. N.T. 76.

He went on to explain that the formulary is essentially a list of the drugs which the pharmacy is to carry in stock to fill prescriptions sent down from the hospital. N.T. 76.

He added, however, that "there are additional provisions *** *** ***. For private patients the additional proviso is made under the rules of the formulary that the private physician may order any drug he wishes, other than those included in the formulary, and the pharmacist is required to secure that drug from the outside, and supply it to the patient. So that it is possible for any physician, attending physician at the hospital, to order any drug that he wishes. *** *** ***." N.T. 77.

He further testified that only three companies were listed as suppliers to the pharmacy of prednisone, and that the American Quinine Company was not one of those three, and that any product that Respondent D'Ambola ordered from the American Quinine Company did not receive the sanction of the hospital formulary committee. N.T. 97.

He stated further that in the Hahnemann Hospital official formulary, published as an addendum dated October 11, 1957, was written: "Prednisone, New and Nonofficial Remedies. After that, in parenthesis, Meticorten, Deltra, Deltrasone, tablets, 5 mg." N.T. 98.

The following testimony then appears:

"Q. Wouldn't it be more logical for the doctor to assume that if he writes for any prednisone, 5 mg. that he would be supplied with one of those three that you mentioned?

"A. He should interpret it that he might get any one of those three companies.

"Q. In other words according to your testimony he should get one of those three?

"A. That is correct.

"Q. By what right should he be supplied by one of another manufacturer, without having some notification?

"A. I don't know that it's been established yet that he was supplied by any other manufacturer.

"Q. You say that if you wrote for it, that that's the ones you feel you are getting, and anything other than that would constitute what?

"A. I think it would constitute a malpractice by Mr. D'Ambola." N.T. 98.

Harvey I. Miller, witness for Respondent, testified that Doctor Fuchs prescribed meticorten which he presented at the hospital pharmacy to be filled and that it was. N. T. 114. He stated that a Mr. Smith filled the prescription by handing him a box labeled meticorten. N.T. 115. Board Exhibit 3.

He testified that after getting the prescription filled he encountered Mr. Schissler of the Schering Company and informed him he had his product and upon showing the box to Shissler, learned from him that he had not received meticorten as called for in the prescription. N.T. 117.

The Respondent, Joseph V. D'Ambola, testified that he was the chief pharmacist at Hahnemann Hospital. N.T. 165.

He stated that in filling the prescription for Doctor Leonard Shapiro in June or July of 1958 he had informed Doctor Shapiro that he did not have meticorten, but had other prednisone tablets and that Doctor Shapiro agreed to accept these other tablets. N.T. 167.

He likewise stated that he did not know who the manufacturer was whose tablets he gave to Doctor Shapiro. N.T. 168.

D'Ambola admitted that he did not know which pharmaceutical manufacturer supplied the tablets of prednisone which he gave to Miller in filling the prescription calling for meticorten. N.T. 177.

The Respondent contradicted the testimony of Paxson, the Hahnemann Hospital administrator, in regard to the operation of the formulary system, by admitting that no matter how a prescription calling for meticorten was written, it would be filled with prednisone without consulting the prescriber. N.T. 200-202. He thus specifically admitted it was the practice in the Hahnemann Hospital pharmacy to substitute without specific consent of the prescribing doctor. N.T. 202.

Pharmacist Smith, who filled the Miller prescription, also testified that he had no way of knowing what company supplied the prednisone he used to fill Miller's prescription, but it was not filled with meticorten as called for. N.T. 237.

Findings of Fact

1. Joseph V. D'Ambola is a registered pharmacist in charge of the pharmacy at Hahnemann Hospital, Philadelphia, Pennsylvania.

2. He was duly cited and notified of a hearing by the State Board of Pharmacy on charges of dangerous substitution.

3. The hearing was held on December 8, 1958 at Harrisburg, Pennsylvania.

4. At said hearing Respondent D'Ambola admitted that he had substituted a generic product known as prednisone for a brand name drug of Schering Company known as meticorten, without the consent of the prescribing physician.

5. At said hearing he likewise admitted that as the registered pharmacist in charge of the Hahnemann Hospital pharmacy he sanctioned the substitution of brand name drugs with generic drugs of a different brand without getting the specific consent and without knowledge of the prescribing physician.

Conclusions of Law

1. By reason of the fact that Joseph V. D'Ambola substituted generic drugs in place of brand name drugs called for in prescriptions without the specific knowledge and consent of the prescribing physician, said Respondent D'Ambola violated subsection (3) of Section 6 of the Act of May 17, 1917, P.L. 208, as amended, 63 P. S. 318, which provides as follows:

"(3) Knowingly compounding, dispensing or selling, or knowingly causing or permitting the compounding, dispensing or sale of any drug which contains more or less than the proportionate quantity of ingredient or ingredients specified by the person ordering or prescribing such drug, or which contains an ingredient or ingredients other than those specified by the person ordering or prescribing such drug, or which is of a brand or which contains an ingredient or ingredients of a brand other than that specified by the person ordering or prescribing such drug, unless, in the case of a drug dispensed pursuant to a prescription, the consent of the prescriber is first obtained: Provided, however, That nothing in this act shall be construed to prohibit the addition of such inert ingredients as may be required in the art of compounding, preparing, mixing or otherwise producing drugs."

Order

The State Board of Pharmacy, by unanimous action of its members, in meeting assembled, voted to suspend the registration certificate of Joseph V. D'Ambola for a period of 90 days, effective July 15, 1959.

BY ORDER OF
THE STATE BOARD OF PHARMACY
/s/ SOL S. TURNOFF
Secretary

In the
Court of Common Pleas
of
No. _____
Dauphin County
Commonwealth Docket, 1959

State Board of Pharmacy vs. Joseph V. D'Ambola

EXCEPTIONS TO ADJUDICATION

of the State Board of Pharmacy

To The Honorable, The Judges of the Said Court:

► JOSEPH V. D'AMBOLA, RESPONDENT, BY HIS ATTORney, J. Warren Brock, hereby excepts to the undated adjudication filed by the Board in the above matter and served upon said Respondent on June 25, 1959, because the learned Board therein erred:

1. In finding as a fact that at said hearing Respondent D'Ambola admitted that he had substituted a generic product known as prednisone for a brand name drug of Schering Company known as meticorten, without the consent of the prescribing physician. (Finding of Fact 4).

2. In failing to find when and to whom Respondent D'Ambola dispensed a generic product known as prednisone in the manner set forth in Finding of Fact 4.

3. In failing to find whether the meticorten brand, rather than the generic product prednisone, in fact was prescribed by the physician whose consent was found not to have been obtained in the transaction described in Finding of Fact 4.

4. (a) In finding as a fact that Dr. B. Marvin Hand prescribed Schering Company's meticorten for Dr. Leonard H. Shapiro. (Adjudication, p. 2, par. 6; p. 3, par. 9).

(b) In failing to find as a fact that Dr. B. Marvin Hand did not prescribe any drugs or medicines for Dr. Leonard H. Shapiro.

(e) In failing to find as a fact that Dr. B. Marvin Hand merely suggested to Dr. Leonard H. Shapiro, during the course of a conversation between them in June 1958, that Dr. Shapiro should treat himself for neuritis by obtaining and taking meticorten and certain other medicines.

5. (a) In finding as a fact that Dr. Leonard H. Shapiro in June 1958, presented to the Hahnemann Hospital pharmacy a written prescription for meticorten, a brand name drug.

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(Adjudication, p. 1, par. 2; p. 2, par. 6).

(b) In failing to find as a fact that Dr. Leonard H. Shapiro received prednisone from Respondent D'Ambola in June 1958, upon Dr. Shapiro's informal, verbal request for the loan of drugs for his personal use.

(c) In failing to find as a fact that the transaction in which Dr. Leonard H. Shapiro received prednisone from Respondent D'Ambola in June 1958 did not involve the dispensing of drugs pursuant to a prescription.

6. (a) In failing to find as a fact that Dr. Leonard H. Shapiro received prednisone from James M. Smith in June 1958, upon Dr. Shapiro's informal, verbal request for the loan of drugs for his personal use.

(b) In failing to find as a fact that the transaction in which Dr. Leonard H. Shapiro received prednisone from James M. Smith in June 1958 did not involve the dispensing of drugs pursuant to a prescription.

7. (a) In finding as a fact that Dr. Leonard H. Shapiro believed that he had received Schering Company meticorten from Respondent D'Ambola. (Adjudication p. 4, pars. 3-5).

(b) In failing to find as a fact that Respondent D'Ambola had advised Dr. Leonard H. Shapiro that Hahnemann Hospital pharmacy did not stock meticorten which Dr. Shapiro had requested but could supply Dr. Shapiro with prednisone.

(c) In failing to find as a fact that Dr. Leonard H. Shapiro informed Respondent D'Ambola that he would accept prednisone in lieu of meticorten.

8. In finding as a fact that prednisone was substituted for meticorten requested by Dr. Leonard H. Shapiro. (Adjudication p. 4, par. 7).

9. (a) In finding as a fact that the prescribing doctor was not consulted when Dr. Leonard H. Shapiro was given prednisone in lieu of meticorten. (Adjudication p. 4, par. 7).

(b) In failing to find as a fact *either* that Dr. Leonard H. Shapiro was the prescribing physician, was advised that he would be given prednisone in lieu of meticorten and agreed to accept it; *or else* that no physician's prescription was involved in this transaction.

10. In finding as a fact that in lieu of meticorten Dr. Leonard H. Shapiro received an alleged inferior drug (Adjudication p. 1, par. 2).

11. In finding as a fact that the label on the box of tablets given to Dr. Leonard H. Shapiro by Hahnemann Hospital pharmacy bore the words "meticorten, 5 mg." and "prednisone." (Adjudication p. 2, par. 8).

12. In finding as a fact that the tablets received by Dr. Leonard H. Shapiro from Hahnemann Hospital pharmacy contained 91.2 per cent of 5 mg. prednisone. (Adjudication p. 3, par. 2).

13. In finding as a fact that Respondent D'Ambola admitted that as the registered pharmacist in charge of the Hahnemann Hospital pharmacy he sanctioned the substitution of brand name drugs with generic drugs of a different brand without getting the specific consent and without knowledge of the prescribing physician. (Finding of Fact 5).

14. In failing to find as a fact when and to whom generic drugs, substituted for brand name drugs without the specific consent and knowledge of the prescribing physician, were distributed with the sanction of Respondent D'Ambola.

15. In failing to find that Dr. Martin Fuchs prior to June 25, 1958, had consented that Hahnemann Hospital pharmacy might fill prescriptions written by him in the manner established by the hospital formulary.

16. In failing to find as a fact that Dr. Martin Fuchs on June 25, 1958, was fully aware of the fact that he had agreed that a prescription written by him which specified a particular brand of a generic drug might be filled by Hahnemann Hospital pharmacy, under the formulary, with the generic drug as manufactured by any company whose product was authorized for purchase by the pharmacy and without further notice to him.

17. (a) In finding as a fact that Respondent D'Ambola filled Dr. Martin Fuchs' prescription for Harvey I. Miller and gave the latter prednisone tablets. (Adjudication p. 6, 6th full par.).

(b) In failing to find as a fact that James M. Smith, not Respondent D'Ambola, filled Dr. Martin Fuchs' prescription for Harvey I. Miller on June 25, 1958.

(c) In failing to find as a fact that Respondent D'Ambola had no knowledge, on June 25, 1958, of Dr. Fuchs' prescription for Harvey I. Miller or the manner in which it was filled by James M. Smith.

18. In failing to find as a fact that James M. Smith filled Dr. Fuchs' prescription for Harvey I. Miller on June 25, 1958, with prednisone rather than the meticorten brand of prednisone, in good faith and in compliance with the procedure established in the Hahnemann Hospital formulary.

19. (a) In finding as a fact that Hahnemann Hospital pharmacy was not authorized to stock or dispense prednisone tablets other than those brands known as Meticorten, Deltra, and Deltasone. (Adjudication p. 5, par. 6 to p. 6, par. 1).

(b) In failing to find as a fact that in June 1958, Hahnemann Hospital pharmacy was authorized, under the formulary procedure, to stock and to dispense, inter alia, prednisone tablets manufactured by American Quinine Company and by Merck, Sharp and Dohme.

(c) In failing to find as a fact that the prednisone tablets stocked by Hahnemann Hospital pharmacy in June 1958 and loaned to Dr. Shapiro and dispensed to Harvey I. Miller were those manufactured by American Quinine Company.

20. In finding as a fact that the prescription presented to Hahnemann Hospital pharmacy by Harvey I. Miller in June 1958 for meticorten was filled with an alleged inferior drug. (Adjudication p. 1, par. 2).

21. In finding as a fact that the drugs dispensed to Harvey I. Miller contained 108.1 per cent of what they were supposed to contain. (Adjudication, p. 3, par. 1).

22. In finding as a fact that the label placed on the box of tablets given to Harvey I. Miller was marked "meticorten 5 mg." (Adjudication p. 2, par. 3).

23. In finding as a fact that Harvey I. Miller was not informed by anyone in Hahnemann Hospital pharmacy that the tablets given to him were not meticorten. (Adjudication p. 2, par. 3).

24. In finding as a fact that Harvey I. Miller informed Ronald H. Schissler, on June 25, 1958, that Hahnemann Hospital pharmacy had prescribed meticorten tablets to him. (Adjudication p. 2, par. 2).

25. In finding as a fact that Harvey I. Miller had not been informed by anyone in the pharmacy that the tablets given to him were not meticorten. (Adjudication p. 2, par. 3).

26. (a) In finding as a fact that Dr. Leonard H. Shapiro informed Ronald H. Schissler that he wished the latter to replace certain tablets received from Hahnemann Hospital pharmacy because they were all eroded, scored and powdery. (Adjudication p. 2, par. 6).

(b) In failing to find as a fact that Dr. Leonard H. Shapiro merely asked Ronald H. Schissler to give the former a sufficient number of meticorten tablets in order that he might return to the pharmacy prednisone tablets loaned to him.

(c) In failing to find as a fact that it was Ronald H. Schissler, not Dr. Leonard H. Shapiro, who suggested that the tablets in question should be replaced because they were eroded, scored and powdery.

27. In failing to find as a fact that the tablets received by Dr. Leonard H. Shapiro and Harvey I. Miller from Hahnemann Hospital pharmacy were prednisone tablets and contained no other active ingredients.

28. In finding as a fact that a substitution of drugs took place in the transaction in which Dr. Leonard H. Shapiro received prednisone tablets from Hahnemann Hospital pharmacy in June, 1958. (Adjudication p. 4, par. 7).

29. (a) In failing to find as a fact that Dr. Leonard H. Shapiro had agreed that prescriptions written by him might be filled by Hahnemann Hospital pharmacy in accordance with the procedures established in the Hahnemann Hospital formulary.

(b) In failing to find as a fact that Dr. Leonard H. Shapiro at all times here in question fully was aware of the fact that he had agreed that prescriptions written by him might be filled by Hahnemann Hospital pharmacy in accordance with the procedures established in the Hahnemann Hospital formulary.

30. In finding as a fact that Dr. Martin Fuchs' prescription, written for Harvey I. Miller, called for meticorten. (Adjudication p. 4, par. 9).

31. In finding as a fact that any product ordered by Respondent D'Ambola from American Quinine Company did not receive the sanction of the hospital formulary committee. (Adjudication p. 5, par. 4).

32. (a) In finding as a fact that James M. Smith filled a prescription for Harvey I. Miller by handing him a box labeled "meticorten." (Adjudication p. 6, first full par.).

(b) In failing to find as a fact that James M. Smith wrote on said box the word "meticorten" merely for the convenience of Harvey I. Miller and so advised him at the time.

33. (a) In finding as a fact that Respondent D'Ambola stated that he did not know who manufactured the tablets which he gave to Dr. Leonard H. Shapiro. (Adjudication p. 6, par. 5).

(b) In failing to find as a fact that Respondent D'Ambola stated that the prednisone tablets which he gave to Dr. Leonard H. Shapiro were manufactured either by American Quinine Company or by Merck, Sharp and Dohme.

34. (a) In finding as a fact that Respondent D'Ambola admitted that he did not know which pharmaceutical manufacturer supplied the prednisone tablets given to Harvey I. Miller. (Adjudication p. 6, par. 6).

(b) In failing to find as a fact that Respondent D'Ambola stated that the prednisone tablets given to Harvey I. Miller were manufactured by American Quinine Company or Merck, Sharp and Dohme.

35. In finding as a fact that Respondent D'Ambola admitted that no matter how a prescription calling for meticorten was written, it would be filled with prednisone without consulting the prescriber. (Adjudication p. 6, par. 7).

36. (a) In finding as a fact that James M. Smith testified that he had no way of knowing what company supplied the prednisone which he used to fill Harvey I. Miller's prescription (Adjudication p. 7, par. 1).

(b) In failing to find as a fact that James M. Smith testified that the prednisone which he used to fill Harvey I. Miller's prescription was supplied by either American Quinine Company or Merck, Sharp and Dohme.

37. In concluding as a matter of law that:

1. By reason of the fact that Joseph V. D'Ambola substituted generic drugs in place of brand name drugs called for in prescriptions without the specific knowledge and consent of the prescribing physician, said Respondent D'Ambola violated subsection (3) of Section 6 of the Act of May 17, 1917, P.L. 208, as amended, 63 P.S. 318, which provides as follows:

"(3) Knowingly compounding, dispensing or selling, or knowingly causing or permitting the compounding, dispensing or sale of any drug which contains more or less than the proportionate quantity of ingredient or ingredients specified by the person ordering or prescribing such drug, or which contains an ingredient or ingredients other than those specified by the person ordering or prescribing such drug, or which is of a brand or which contains an ingredient or ingredients of such a brand other than that specified by the person ordering or prescribing such drug, unless, in the case of a drug dispensed pursuant to a prescription, the consent of the prescriber is first obtained: Provided, however, That nothing in this act shall be construed to prohibit the addition of such inert ingredients as may be required in the art of compounding, preparing, mixing or otherwise producing drugs." (Conclusion of Law 1).

38. In concluding as a matter that brand name drugs referred to in prescriptions written subject to the operation of the Hahnemann Hospital formulary system were "called for" or "specified" within the meaning of Section 6(3) of the Act of May 17, 1917, P.L. 208, as amended, 63 P.S. §318. (Conclusion of Law 1).

39. (a) In concluding as a matter of law that a pharmacist violates section 6(3) of the Act of May 17, 1917, P.L. 208, as amended, 63 P.S. §318, where, with the prior general consent of the prescribing physician, he fills a prescription referring to a particular brand name of a generic drug with the generic drug as produced by another manufacturer—unless the pharmacist further obtains the prescribing physician's specific consent that he so fill that particular prescription. (Conclusion of Law 1, by implication).

(b) In failing to conclude as a matter of law that Respondent D'Ambola did not violate section 6(3) of the Act of May 17, 1917, P.L. 208, as amended, 63 P.S. §318, where, under the authority of the duly promulgated Hahnemann Hospital formulary, he filled a prescription referring to a particular brand name of a generic drug with the generic drug as produced by another manufacturer, and the prescribing physician previously had consented that the pharmacy thus might fill prescriptions written by him.

40. (a) In concluding as a matter of law that where one physician verbally recommends to a second physician that the latter obtain and treat himself with a certain drug, and the latter physician then verbally orders that drug for himself, the pharmacist may not dispense a different brand of the same drug to him without the consent of the first physician. (Conclusion of Law 1, by implication).

(b) In failing to conclude as a matter of law that where one physician verbally recommends to a second physician that the latter obtain and treat himself with a certain drug, and the latter physician then verbally orders that drug himself, a pharmacist is not required by law to obtain the consent of the first physician where the brand name drug recommended by him is not stocked and the second physician agrees to accept in lieu of it the generic drug as produced by another manufacturer.

41. In concluding as a matter of law that section 6(3) of the Act of May 17, 1917, P.L. 208, as amended, 63 P.S. §318, not only requires a pharmacist to obtain the consent of the prescribing physician where he fills a prescription referring to a particular brand name of a generic drug with the generic drug as produced by another manufacturer, but also further requires that the prescribing physician be informed with what drug the prescription was filled. (Conclusion of Law 1).

42. In entering the following order:

"The State Board of Pharmacy, by unanimous action of its members, in meeting assembled, voted to suspend the registration certificate of Joseph V. D'Ambola for a period of 90 days, effective July 15, 1959.

BY ORDER OF
THE STATE BOARD OF PHARMACY
/s/ SOL S. TURNOFF
Secretary

(Adjudication p. 8).

/s/ J. Warren Brock
Attorney for Joseph V. D'Ambola

COMMONWEALTH OF PENNSYLVANIA:
ss.
COUNTY OF PHILADELPHIA :

JOSEPH V. D'AMBOLA, the above-named exceptant, being duly sworn according to law, says that the foregoing exceptions are not interposed for the purpose of delay, but because deponent verily believes that injustice has been done him.

/s/ Joseph V. D'Ambola

SWORN TO AND SUBSCRIBED
BEFORE ME THIS 29th DAY
OF June A. D. 1959
/s/ Esther E. Weber
Notary Public
Notary Public, Philadelphia, Philadelphia Co.
My Commission Expires January 6, 1961.

A view of a sterile solutions room showing aseptic filling hood, University of Chicago Clinics

some considerations in the preparation of small volume

STERILE SOLUTIONS

in the small hospital

by Sister Mary Berenice

► SINCE THE ADJECTIVE "SMALL" IS RELATIVE, THE scope of this paper may include any amount of fluids ranging from a single injection for any size hospital, to the volume of fluids needed routinely in a small hospital. Again, because of the relativity of the word "small," this grouping, perhaps may comprise any size hospital ranging from, let us say, six beds to as many as two hundred beds. In considering this subject, and the approach which one would take to it, the size of the hospital would be a factor of definite bearing. For this reason, the subject may be considered from more than one aspect.

Whether the hospital prepares sterile fluids in bulk, or only in small extemporaneous amounts, it must be properly equipped and have sufficient qualified personnel. Every hospital pharmacist must have the ability to prepare small amounts of parenteral fluids whenever the need arises. The choice of equipment and

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personnel must conform to the needs required to accomplish the objectives of each institution, but each institution must determine for itself whether or not it can profitably prepare parenteral fluids and the scope of its programs.

We shall try to outline some of the norms by which an institution may be guided in making its decision.

Why One Should Compound

Size of the hospital has no bearing upon the application of proper techniques and procedures in the preparation of parenteral fluids. Basically, these must conform to the same standards no matter what the size of the hospital except for the choice of equipment and the numbers of qualified personnel.

Let us not become lost in the concept of bulk compounding; neither of sterile nor of non-sterile preparations. Never should we compound just for the sake of compounding. We must be certain of the logic of our reasoning regarding the compounding of bulk preparations. Possibly, there are three major reasons why one should compound:

1. When preparations needed are not available on the market and consequently must be prepared in the hospital. The pharmacist then must have proper equipment and facilities.
2. In teaching institutions, sterile fluids may be profitably prepared not only in bulk, but also in small amounts so that the students may learn proper techniques. Small volumes may be even more significant, since in most instances after the student leaves this institution he will be called upon more frequently to prepare small rather than large volumes of sterile fluids.

   A teaching institution need not necessarily be the large hospital. A small hospital can serve as a teaching institution when it is properly staffed and equipped to function in that capacity and when its personnel are willing to devote essential time to the students. Students must be taught at least proper techniques for preparing small amounts of extemporaneous parenteral medications, and possibly a number of larger volume sterile fluids.
3. When compounding can be done at a cost less than that of the purchase price and where one has suitable facilities and qualified personnel. One never must be satisfied with producing anything but perfect fluids or preparations.

Calculating Costs

When calculating costs, one must not forget that there exist hidden costs which must be taken into account. These costs can be determined by a cost finding process. Such costs may include:

1. Heat, light and power (computed on the basis of square footage).
2. Maintenance and repairs in the Pharmacy Department (direct cost).
3. The Pharmacy's portion of the general maintenance cost of the hospital (based on area allotment).
4. Dietary (cost per meal for those employees entitled to receive meals).
5. Laundry (cost per pound of soiled linens used in the Pharmacy—average soiled linens weigh 5% more than clean linens.)
6. Medical Records (percentage of cost allocated to Pharmacy).
7. Motor service (if such exists).
8. Housekeeping in the Pharmacy (direct cost).
9. Housekeeping in the entire institution (percentage cost to Pharmacy).
10. Pharmacy's share in the over-all administrative cost.
11. Amortization of borrowed funds or perhaps of a lease; interest on borrowed funds; possibly rent charges (portion allocated to Pharmacy).
12. Depreciation on building and equipment:
    a. Construction cost based on a 50 year life and charged each month as 1/12 of 1/50 of the cost. (In a new building more than likely it will be possible to obtain the actual construction cost of the pharmacy area and possibly that may be from $25 to $30 per square foot.)
    b. Equipment considered as having a ten year life; each month a charge is made to the department of 1/12 of 1/10 of the cost of the equipment.
13. Electricity and water, as a direct cost or possibly this may be based on a percentage of the entire cost.
14. Salary for all pharmacy personnel.
15. Possibly other obscure costs.

Even in the area of sterile fluid preparation, a portion of this overhead cost must be included in the cost of production in order to derive the complete cost of compounding each product.

These figures must be obtained from the financial office.

Objectives and Rationale

In discussing parenteral fluids, one must consider that the purpose of parenteral fluid therapy is to provide fluids for the patient's present needs, to make up for past losses, and to supply his daily losses. In small volume production, possibly only specific requirements of the individual patients are to be considered, and in certain instances, small volumes of fluids may be all that is required to correct the immediate imbalance of fluids and electrolytes in the individual patient. Concentrated fluids also may be prepared in small volumes which later can be diluted to the desired concentration.

It is difficult to see the rationale of preparing large volumes of fluids for intravenous use in the average small hospital, since in practically all instances, or possibly in many instances, these hospitals are not

properly equipped to do this. If the hospital employs only one pharmacist who is busy for either five, six or seven days of the week, compounding and dispensing prescriptions and stock for patients, and if this pharmacist has no additional help, it would be impractical for that hospital to prepare its own parenteral fluids even if it could be proven that the cost of production would be less than the purchase price. Price cannot be our principal decisive factor.

The Decision

After the situation has been studied and all of its possibilities considered and it is decided to undertake the program of parenteral fluid preparation, then one must begin the work of concentrating upon the preparation of perfect parenterals, produced by means of proper equipment, material of greatest purity, and skillful techniques.

Personnel Planning

The individual who will be responsible for the making of the fluids, must be a well trained, competent, and trustworthy pharmacist. If it is not possible to employ a pharmacist for the routine procedures, at least he must give the entire process his minute supervision, and carry this out in such a manner as if he, himself, were carrying out the entire production. Definitely, according to the Minimum Standard for Pharmacies in Hospitals, and also according to legal intent and moral accountability, it is the pharmacist who must assume the entire responsibility of the production, and/or procurement and dispensing, testing and control of parenteral fluids. With proper equipment, competent personnel and adequate time, the hospital should be able to prepare sterile injectables of a quality as excellent or even better than those produced commercially. Whether he prepares one single injection or large volumes, his care in technique and procedure must be equally accurate.

There is a possibility that compounding and dispensing duties are light in certain hospitals employing a full time pharmacist. There may be certain periods of slack time, during which the pharmacist may be able to prepare sterile fluids without being interrupted. In that case it may be a saving to employ the pharmacist to his full capacity by having him prepare certain routine sterile solutions. Also a nonprofessional helper who is accurate and dependable, or a pharmacy student may be employed to assist the pharmacist in these duties and thus the pharmacist may be enabled to prepare these fluids at a cost lower than the purchase price of commercially made fluids.

If the hospital employs a pharmacist part time to relieve the regular pharmacist during his off time, it may be more practical to employ two full time pharmacists and use the one for the routine preparation of fluids, except when he relieves the regular pharmacist. In that way he should be able to devote about three days a week to the preparation of sterile fluids. However, we cannot repeat too often that every possible precaution must be observed, *i.e.* the best quality of chemicals used, sterile technique employed, all required tests made, exact controls exercised, and permanent records of every procedure maintained. There must be visual screening, chemical, sterility, and pyrogen tests on every batch of fluids prepared. A quarantine area must be maintained where solutions are placed until these tests have been completed. A release procedure must be established. When sterile fluids are prepared in bulk quantities, even when this is a small amount when compared with the volumes used in large hospitals, the same control must be exercised, the same tests made, and the same technique employed and precautions taken as when these fluids are prepared in a large hospital. When only single doses are prepared great care must be exercised in following the best procedures since it would not be possible to make the routine tests as outlined above.

Other Considerations

As a final consideration we might ask ourselves the question "Can the pharmacist in a small hospital effect a saving for the institution in the production of routine parenteral preparations?" There is no question about extemporaneous preparations which are needed at once, or which are not commercially available. These the pharmacist must be prepared to make at all times whenever the need arises.

We might here revert back to the consideration of another aspect of hidden costs that frequently may be overlooked. It costs from $20 to $28 or even $30 per square foot in the construction of the area needed for the preparation of sterile products. Could this area be used to a better advantage? If the area is large enough to be used for the production of sterile fluids, is it large enough for a patient's room? If so, with the per diem cost for patients ranging from $14 to $20 or even $30, will the revenue thus lost be recovered by the savings of producing sterile fluids?

In conclusion, it is evident that there are many variables to be considered when an institution contemplates the preparation of small volumes of sterile fluids. The project must be carefully studied from every angle and it must be determined whether or not it is profitable to prepare these fluids, and if so, which particular ones the pharmacy department can best produce. Any solutions prepared in the pharmacy of the hospital must meet all official specifications and be of excellent quality beyond all reproach. There must be no satisfaction except in the production of perfect solutions.

APPRECIATION TO ROBERT P. FISCHELIS

► AFTER FIFTEEN YEARS AS SECRETARY AND GENERAL MANAGER of the American Pharmaceutical Association, Dr. Robert P. Fischelis has completed another assignment in his long career of service to pharmacy. To few men have come the opportunities to serve their profession so fully. Fewer still have possessed the unselfish dedication to service and the unquestioned ability of Dr. Fischelis.

The pharmaceutical record inscribed by Dr. Fischelis is an enviable one—

Author of numerous articles and editorials, contributor to several textbooks, and co-author (with H. U. Arny) of *Principles of Pharmacy*

Editor of the *Journal of the American Pharmaceutical Association* for several years, and editor and founder of the *Pennsylvania Pharmacist,* and the *New Jersey Journal of Pharmacy*

Practitioner of pharmacy in retail and hospital pharmacies of Pennsylvania and New Jersey

Association executive including Secretary and General Manager of the A.Ph.A., Executive Secretary of the New Jersey Board of Pharmacy, and officer and member of executive councils of local, state and national organizations

Professor of pharmacy at the Medico-Chirurgical College in Philadelphia, Philadelphia College of Pharmacy and Science, and George Washington University

Recipient of honorary degrees from the University of Connecticut, Rutgers University, and the Philadelphia College of Pharmacy and Science

Consultant to numerous Federal and state governmental agencies

Commissioned as Pharmacist Director in the U. S. Public Health Service

Researcher on the staff of Committee on Costs of Medical Care

Advisor to the American Delegation, International Health Conference and member of the Executive Committee, National Health Assembly

Member Revision Committee of the U. S. Pharmacopeia, American Council on Pharmaceutical Education, Committee on Drugs and Medical Supplies of the National Research Council, as well as a member of numerous professional and scientific organizations

Recipient of the Remington Medal, the Lascoff Award, and others

Founder and first Director of the Division of Hospital Pharmacy and later Chairman of its Policy Committee

And other professional activities too numerous to mention.

Dr. Fischelis began his pharmaceutical career in a characteristic American manner. He combined working in retail pharmacies in Philadelphia and New Jersey with attendance at college. Later he pursued studies in the liberal arts and did graduate work, earning a B. Sc. in chemistry, the Ph. M. and Phar. D. degrees.

► WHEREAS Dr. Robert P. Fischelis has been a constant source of sage counsel and an understanding friend of hospital pharmacy during his many years as Secretary of the American Pharmaceutical Association, and

WHEREAS his keen mind early perceived the true role of hospital pharmacy in health care, and

WHEREAS he has encouraged and guided the development of hospital pharmacy over the course of years, and

WHEREAS he conceived and established the Division of Hospital Pharmacy, thus forging strong bonds of mutual cooperation between the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and the American Pharmaceutical Association, and

WHEREAS his contributions to hospital pharmacy and to the total profession have been too numerous to enumerate, now therefore be it

RESOLVED that this assembly, on behalf of the entire membership of the SOCIETY, express to Dr. Robert P. Fischelis its sincere appreciation and heartfelt gratitude for his unselfish devotion and his contributions to hospital pharmacy, and for his guidance over the years, and be it further

RESOLVED that this token of appreciation be symbolized by a rising vote of gratitude to Dr. Robert P. Fischelis as he completes another assignment in his long illustrious career of service and dedication to his profession.

— Resolution passed by the American Society of Hospital Pharmacists
1959 Annual Meeting, Cincinnati, Ohio

continued from page 458

He first served as a member of the A.Ph. A. Council in 1918 and has served continuously since 1933. In 1958, he was elected again to the A.Ph.A. Council, forty years after his first term of office. In 1934, Dr. Fischelis served as President of the Association and his rousing presidential address is still remembered as one which called upon American pharmacy to mobilize an alert, dynamic, forceful association for the betterment of the profession.

Early in his career as A.Ph.A. Secretary, Dr. Fischelis paid tribute to the enthusiasm and the rapid growth and development of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. To strengthen the bonds of cooperation between the A.Ph.A. and the SOCIETY, he created the Division of Hospital Pharmacy to serve both organizations. During his many years at the A.Ph.A., Dr. Fischelis has actively contributed to progress in hospital pharmacy, taking a leading part in the development of the Minimum Standard for Pharmacies in Hospitals, internship programs, research activities including the Audit of Pharmaceutical Service in Hospitals and numerous other projects.

At the Cincinnati Convention, the members of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS paid homage to Dr. Fischelis by a resolution which was passed with a rising ovation. As Dr. Fischelis turns his mind and energies to new tasks, his colleagues and friends of the ASHP wish him well and thank him sincerely for his many contributions to hospital pharmacy. May his past contributions to his profession be the prologue to his future.

Therapeutic Trends

edited by WILLIAM JOHNSON

Clinical Trial of Dihydro-Hydroxycodeinone Pectinate

A new long-acting analgesic was tested to ascertain its efficiency as a premedicant and as a postoperative agent. The drug was given in 250 cases. These were surgical cases selected at random and included abdominoperineal resection for carcinoma of the rectum, prostatectomies and 12 caesarean sections. In a majority of the cases the dosage was 10 mg. given intramuscularly. No more than three injections were given to any one patient. The maximum effect was gained when the drug was administered 30 minutes before the end of the operation. The full effect was then apparent by the time the patient regained consciousness. Proladone has definite analgesic properties and a prolonged action. It has very little effect as a premedication in combination with chlorpromazine. For postoperative analgesia it was effective in 91 percent of the patients used in the trial. Other patients were sufficiently relieved of pain to allow sleep. The age of the patients ranged from 6 to 90 years of age. Proladone was supplied by Crookes Laboratories Limited. This study was done by R. H. Boyd and reported in *Anesthesia 14*:144 (Apr.) 1959.

RICHARD H. HARRISON

Echothiophate (Phospholine) Iodide

Echothiophate iodide is a potent long-acting water-soluble cholinesterase inhibitor. It lowers intraocular pressure by increasing the facility of outflow significantly in normal eyes. The addition of this agent, 0.25 percent topically, improved the outflow facility sufficiently to result in better control in approximately 50 percent of glaucomatous eyes uncontrolled on other medical therapy. Subjunctival pyridine-2-aldoxine-methiodide (0.2 ml. of 4 percent solution) reverses the pupillary and tonographic effects of echothiophate. In human eyes, the topical application of echothiophate produced miosis lasting 7 to 20 days. Of 86 eyes with uncontrolled chronic simple glaucoma, echothiophate improved outflow facility by 25 percent in 62 eyes, 50 percent in 50, and 100 percent in 34. Side effects such as ciliary and conjunctival injection, brow pain, headache, and transient blurring of vision were experienced by most glaucomatous patients. These effects disappeared after the first few days of therapy. There was no detachment or drug sensitivity. These findings were reported by Bernard Becker *et al* in *Am. J. Ophth. 47*:635 (May) 1959, Part I.

SYLVIA SCHMIDT

Treatment of Paralysis Agitans With Chlorphenoxamine Hydrochloride

A new drug for the treatment of paralysis agitans was tested by Lewis Doshay and reported in *J. Am. Med. Assoc. 170*:37 (May 2) 1959. Even though there are seemingly many drugs available now for the treatment of paralysis agitans, there are still reasons for a continuing search for new ones. Some of the reasons are: many patients, especially those suffering tremor and akinesia, are not helped sufficiently by current drugs; people live longer giving an increasing number of older patients who cannot tolerate the available remedies; drugs tend to lose their beneficial effects with the passing of time and therefore we must have a large assortment of good compounds for replacement. The new drug, chlorphenoxamine was tested in a series of 161 patients. It was found to be free of toxic effects. It was most effective against rigidity, akinesia fatigue, depression and weakness. It is less effective against tremor. The patient is given more energy and strength, greater freedom of motion and longer duration of action than with most current remedies. The optimum dosage seemed to be 50 mg. given three times daily after meals and with milk. Taking the drug with milk after meals overcame the complaint of indigestion. Side reactions were minimal. Increased tolerance was rare and did not appear before three to six months. The tests indicated the new drug to be a valuable addition to those already in use for the treatment of paralysis agitans. It may be used alone or in combination with other drugs. The chlorphenoxamine used in the study was furnished by the Pitman-Moore Company and will be marketed as Phenoxene.

RICHARD H. HARRISON

Timely Drugs

Altafur

GENERIC NAME: Furaltadone, a nitrofuran.
INDICATIONS: In pulmonary infections, upper respiratory infections, abscesses, bacteremia, and various wound infections.
SIDE EFFECTS AND CONTRAINDICATIONS: Occasionally nausea and emesis; and apparent sensitization reaction in the form of a maculopapular cutaneous eruption has been reported in a few cases.
DOSAGE: Adults, 15 to 22 mg. per Kg. given in 4 equally divided doses; infants and younger children, 22 to 25 mg. per Kg. daily.
PREPARATIONS: Tablets containing 50 mg. and 250 mg. furaltadone.
PACKAGING: Bottles of 20 and 100 tablets.
SUPPLIER: Eaton Laboratories.

Depo-Medrol

GENERIC NAME: Methylprednisolone acetate.
INDICATIONS: Anti-inflammatory steroid, long-acting, with less tendency to induce retention of sodium and water.
SIDE EFFECTS AND CONTRAINDICATIONS: In presence of acute infections, intra-articular, intrabursal, intratendinous or other injection of Depo-Medrol is contraindicated; contraindicated in patients with arrested tuberculosis, renal insufficiency, peptic ulcer, acute psychoses, Cushing's syndrome, herpes simplex keratitis, vaccinia, and varicella.
DOSAGE: Depending on size of joint and severity of condition for intra-articular injection, ranging from 4 to 80 mg.; intrabursal and intratendinous dose ranges from 4 to 30 mg.; for intralesional therapy, 20 to 60 mg. For maintenance in rheumatoid arthritis, 40 to 120 mg. intramuscularly, every 2 weeks. For additional dosage, see package literature.
PREPARATIONS: Injection methylprednisolone 40 mg. per ml.
PACKAGING: Vials of 1 and 5 ml.
SUPPLIER: Upjohn Co.

Fulvicin

GENERIC NAME: Griseofulvin.
INDICATIONS: Antifungal antibiotic; used orally to control ringworm infections.
DOSAGE: Adults, 0.25 Gm. 4 times daily until at least two weeks after patient shows no clinical signs of presence of fungi in skin, hair or nails; children over 50 lbs., 0.25 Gm. 3 times daily; under 50 lbs., 0.25 Gm. twice daily; infants under 2 years of age, 0.125 Gm. twice daily.
PREPARATIONS: Tablets containing 0.25 Gm. griseofulvin.
PACKAGING: Bottles of 30 tablets.
SUPPLIER: Schering Corp.

Grifulvin

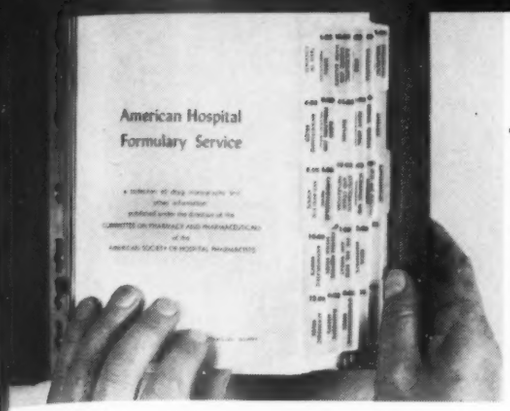
GENERIC NAME: Griseofulvin; 7-chloro-2',4,6-trimethoxy-6'-methylspiro[benzofuran-2(3H), 1'[2]cyclohexene]-3,4'-dione, derived from a species of Penicillium.
INDICATIONS: Antifungal, in tinea capitis, tinea corporis, tinea pedis, and tinea unguium.
SIDE EFFECTS AND CONTRAINDICATIONS: Occasionally, mild to moderate degree of gastrointestinal upset, headache, or urticaria.
DOSAGE: Adults, 0.25 Gm. 4 times daily; children, approximately 10 mg. per lb. body weight per day.
PREPARATIONS: Tablets, 0.25 Gm., scored.
PACKAGING: Bottles of 16 and 100 tablets.
SUPPLIER: McNeil Laboratories, Inc.

Mepergan

COMPOSITION: Promethazine (Phenergan) hydrochloride and meperidine hydrochloride.
INDICATIONS: Analgesic and sedative in management of severe pain, in obstetrics, in perisurgical care, and in oral surgical procedures.
SIDE EFFECTS AND CONTRAINDICATIONS: May produce drowsiness, dryness of the mouth, blurring of vision and, rarely, dizziness; intravenous administration should not be attempted unless facilities are immmediately available for adequate oxygenation, assisted respiration or controlled respiration; narcotic antagonists should also be available for immediate use. Subject to Federal narcotic regulations.
DOSAGE: Adults, 1 or 2 ml. intramuscularly; in children, 0.5 mg. of each component per lb. of body weight. If given intravenously, it should be used in concentrations no greater than 25 mg. of each component per ml., at a rate not to exceed 25 mg. of each per minute.
PREPARATIONS: Injections containing either 25 mg. or 50 mg. per ml. of promethazine hydrochloride and either 25 mg. or 50 mg. per ml. meperidine hydrochloride.
PACKAGING: Mepergan 25, with 25 mg. of each component per ml., in 2 ml. Tubex sterile-needle unit and in 10 ml. vials; Mepergan 50, with 50 mg. of each component per ml., in 1 ml. Tubex sterile-needle unit and in 10 ml. vials.
SUPPLIER: Wyeth Laboratories.

Vanay Vaginal Cream

GENERIC NAME: Triacetin in a non-liquefying base.
INDICATIONS: Specific therapy in vaginal moniliasis; especially indicated during pregnancy, diabetes, and following use of antibiotics; also as adjunctive therapy in trichomoniasis.
DOSAGE: 2 to 4 Gm. intravaginally at bedtime; during acute stage of infection, an application twice daily (morning and night) is recommended.
PREPARATIONS: Non-liquefying base containing 0.25 Gm. glyceryl triacetate per Gm.
PACKAGING: Tubes of 1½ oz. with 15 disposable applicators.
SUPPLIER: Ayerst Laboratories.



AMERICAN HOSPITAL FORMULARY SERVICE

edited by WILLIAM HELLER, *Chairman ASHP Committee on Pharmacy and Pharmaceuticals*

Monographs in Process

Second Supplement Available

► The Second Supplement to the American Hospital Formulary Service will be mailed to subscribers in September. This will include the following monographs:

28:16 chlormethazanone (Trancopal)
68:20 chlorpropamide (Diabinese)
68:04 dexamethasone (Decadron, Deronil, Gammacorten, hexadecron)
8:08 dithiazanine iodide (Abminthic, Delvex)
12:08 isopropamide (Darbid)
12:12 mephentermine (Wyamine) sulfate
12:20 methocarbamol (Robaxin)
28:24 methitural (Neraval) sodium
68:08 norethandrolone (Nilevar)
68:32 norethynodrel (including Enovid)
12:12 pseudoephedrine (isoephedrine) hydrochloride (Sudafed)
8:24 salicylazosulfapyridine (azopyrin, Azulfidine, salazopyrin)
84:08 trimeprazine (Temaril)

Future Supplements

Also, the following material is being prepared for inclusion in future Supplements to the American Hospital Formulary Service:

A general statement on the phenothiazines, 28:16

Revisions of the following in 28:16:

chlorpromazine (Thorazine) hydrochloride
mepazine (Pacatal)
perphenazine (Trilafon)
prochlorperazine (Compazine)
promazine (Sparine) hydrochloride
thiopropazate (Dartal) hydrochloride
trifluprom azine (Vesprin) hydrochloride

New Monographs for 28:16:

methoxypromazine (Tentone)
pipamazine (Mornidine)
thioridazine (Mellaril) hydrochloride
trifluoperazine (Stelazine) hydrochloride
trimeprazine (Temaril)

Others Monographs being Prepared:

8:12 amphotericin B (Fungizone)
52:16 benoxinate (Dorsacaine) hydrochloride
12:08 benztropine (Cogentin) methanesulfonate
36:36 betazole hydrochloride (Histalog)
4:00 brompheniramine (Dimetane) maleate *and* brompheniramine maleate, dextro (DIsomer)
8:04 carbarsone
8:32 carbarsone
52:28 cetylpyridinium (Ceepryn) chloride (including Cepacol)
4:00 chlorpheniramine (Chlor-Trimeton) maleate *and* chlorpheniramine maleate, dextro (Polaramine)
32:00 clove oil *and* eugenol
40:20 coconut oil (including Ediol)
40:20 corn oil (including Lipomul Oral)
40:20 cottonseed oil (including Lipomul I.V.)
56:20 cyclizine (Marezine) hydrochloride
68:16 dienestrol (Restrol, Synestrol)
8:08 diethylcarbamazine (Hetrazan) citrate
44:00 fibrinolysin (Actase, plasmin)
68:08 fluoxymesterone (Halotestin, Ora-Testryl, Ultandren)
8:12 griseofulvin (Fulvicin, Grifulvin)
84:06 hydrocortisone
28:20 imipramine hydrochloride (Tofranil)
28:10 levallorphan (Lorfan) tartrate
56:04 magnesium oxide
84:04.16 merbromin (Mercurochrome)
76:00 methylergonovine (Methergine) maleate
68:36 methylthiouracil (Muracil)
44:00 penicillinase (Neutrapen)
4:00 pheniramine (Trimeton) maleate (including Novahistine)
16:00 plasma protein fraction (human) (Plasmanate)
52:08 prednisolone
84:06 prednisolone (including Hydeltrasol, Meti-Derm, Neo-Delta-Cortef)
8:12 ristocetin (Spontin)
32:00 sodium fluoride, (new category on Dental Agents).
8:26 sodium glucosulfone (Promin Sodium), (new category on Sulfones).
8:26 sodium sulfoxone (Diasone Sodium)
8:24 sulfadimethoxine (Madribon, Madriqid)
8:26 thiazolsulfone (Promizole)
84:04.16 thimerosal (Merthiolate)
84:24.12 titanium dioxide
84:06 triamcinolone acetonide (Aristocort Acetonide, Kenalog)
40:28 urea (carbamide) (including Urevert)
8:12 vancomycin (Vancocin)

The American Hospital Formulary Service was first made available by the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS early in 1959. Designed to assist hospitals materially in the promotion of better patient care through improved drug therapy, the Service is being used in hospitals throughout the nation.

To date, the initial volume and Supplement I have been distributed to subscribers. As originally distributed, the Formulary Service contains more than 1,500 pages and includes a total of 605 drug monographs listing 1,667 drug preparations. From these and the Supplements which will be issued periodically, Pharmacy and Therapeutics Committees in hospitals are encouraged to select those monographs to be included in their individual hospital formularies.

The American Hospital Formulary Service may be ordered from the Hamilton Press, Hamilton, Illinois, at $15.00 per copy.

1959 INSTITUTES

Salt Lake City St. Louis Chicago

► THE HOSPITAL PHARMACY INSTITUTES for 1959 were attended by at least five percent of all the full-time practicing hospital pharmacists in the United States. Meeting in St. Louis, Salt Lake City and Chicago, the hospital pharmacists heard programs, saw demonstrations, and participated in study sessions centered around improving pharmacy practice in hospitals.

The St. Louis Institute was conducted by the Catholic Hospital Association and those in Salt Lake City and Chicago were conducted by the American Hospital Association. All were held in cooperation with the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and the American Pharmaceutical Association. Local assistance was given in Salt Lake City by the Utah Society and in Chicago by the Illinois Society.

An Institute enrollee discusses the day's program with a faculty member

Institute enrollees "look over" the American Hospital Formulary Service

The programs for the two Institutes conducted by the American Hospital Association were essentially the same and were planned by the Program and Public Relations Committee of the ASHP which was headed by Allen V. R. Beck, Chief Pharmacist, Indiana University Medical Center in Indianapolis. Coordinators for both programs were Joseph A. Oddis from the A.H.A. staff and Paul Parker, Director of the Division of Hospital Pharmacy of the A.Ph.A. and ASHP.

The summary of the two A.H.A. institutes which was forwarded to the administrators of the hospitals in which each of the enrollees was employed provides a comprehensive review of both programs.

The purpose of the Institute on Hospital Pharmacy was to provide an intensive refresher course dealing with the overall aspects of hospital pharmacy practice. Specifically, the institute program this year was divided into six major themes—1) Services to Nursing Units, 2) Departmental Management, 3) Physical Planning of the Pharmacy, 4) Bulk Compounding and Prepackaging, 5) Pharmacy and Therapeutics Committees and 6) Professional Services.

Services To Nursing Units

1. A visual-aid presentation served to outline the representation of the hospital pharmacist at the national level. The relationships of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, the American Hospital Association, The Joint Commission on Accreditation of Hospitals and the Division of Hospital Pharmacy of the American Pharmaceutical Association to the practice of hospital pharmacy were discussed.

2. Various methods of processing individual patient drug orders including weaknesses, strengths and factors bearing on the choice of method to be employed in each hospital were reviewed.

Submitted by Paul F. Parker, Director of the Division of Hospital Pharmacy of the American Pharmaceutical Association and the American Society of Hospital Pharmacists.

A Clinic Session encourages group participation and exchange of ideas

3. Newer methods for charging medications to patients were described. Various procedures for providing medications (charge and non-charge drugs) to the nursing units were discussed.

4. Pharmacists were urged to extend their responsibilities to include participation in programs dealing with the safe handling of drugs throughout the hospital. Methods of supervising and controlling drugs on nursing units were presented.

5. Procedures for getting orders to the pharmacy and the medications back to the nursing units and to the patient expediently and efficiently were outlined.

6. Around-the-clock pharmacy coverage, as an extension of service, was discussed. Problems encountered in establishing and providing such a service were presented. Emphasis was placed on the need for tailoring the service to meet the needs and conditions of the particular hospital involved.

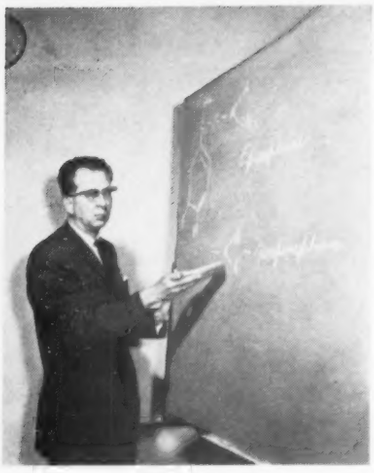
Members of the local affiliated chapter assist with registration and instruct enrollees regarding the program for the week

Departmental Management

1. Factors which need to be taken into consideration in planning and organizing a pharmacy department from an administrative point of view were enumerated. Approved standards and guides were presented to serve as a basis for developing a planning program.

2. The need for and basic advantages of having written policies and procedures for the proper administration of the pharmacy department were presented.

Representatives of the local chapter welcome the enrollees



A faculty member discusses current trends in drug development

Enrollees and faculty members look over literature which supplements the various lectures during the week

Suggestions were offered to aid in developing a pharmacy procedural manual.

3. The hospital pharmacist should be cognizant of his responsibilities in maintaining the physical facilities of his department. Suggested methods were discussed and the American Hospital Association Manual on Preventive Maintenance was reviewed.

4. The various types of records and reports which are needed in operating the pharmacy department were discussed. Records and reports which have been adopted to transmit information to the administrator or to other hospital departments were included in the discussion.

5. An administrator, a controller and a pharmacist examined and dramatized a pharmacy budget meeting.

6. Job specifications and job descriptions served as a basis for delineating responsibility among employees. This discussion outlined the need for, and techniques employed in preparing, job descriptions and job specifications.

7. The principles of supervision were reviewed with particular emphasis on the need for this managerial tool, how it is achieved, the relationship between supervision and delegation of responsibility, and some of the supervisory techniques.

8. The practical aspects of hospital pharmacy practice were explored through a stimulating question and answer period during the evening session.

Physical Planning Of The Pharmacy - Compounding and Prepackaging

1. A general discussion of factors to be considered in planning and designing a pharmacy department included scope of services, personnel and space requirements, fixtures and equipment needs.

2. The special services which a bulk compounding program can provide to the medical and nursing staffs and to other hospital departments were discussed. Savings which might be realized from such a program were discussed.

3. Developing a bulk compounding program was discussed with emphasis on such factors as the basic equipment necessary, space requirements and personnel needs.

4. The need for preparing special sterile products was discussed including equipment requirements and sources of supply and relative costs.

A typical group of institute enrollees—the Salt Lake City Institute, 1959

Dr. George F. Archambault poses with members of the Catholic Hospital Association's Committee on Hospital Pharmacy Practice (l. to r.) Sister M. Cherubim, Chairman, Sister Margaret Ann, Sister Mary Alberta, and Sister Mary Aurita

5. Designing and implementing an overall program of controls to insure safety in drug preparation processes in the hospital pharmacy was discussed.

6. Methods and techniques of prepackaging pharmaceuticals for increased efficiency in dispensing were discussed.

Pharmacy and Therapeutics Committee and Formularies - Professional Services

1. The organization, function and operation of the pharmacy and therapeutics committee were analyzed.

2. The purpose, operation, use and application of the American Hospital Formulary Service to the individual hospital were discussed.

3. The operation of a formulary system and its relationship to the medical, nursing and pharmacy staff was presented with particular emphasis on the advantages and disadvantages of the system to these three groups.

4. The purpose, format, content, preparation and distribution of the pharmacy newsletter as a communicative tool to the medical and nursing staffs were discussed.

5. Methods and formulae for calculating the concentration of electrolytes were illustrated.

6. A Guide to Information Sources for the hospital pharmacist was distributed. This Guide represents a comprehensive list of selected reference sources needed in the hospital pharmacy for providing technical information service to the hospital staff.

7. Current trends in the use of tranquilizing drugs in pediatrics were discussed and the importance of careful writing of clinical data was emphasized.

8. A very informative evening session was devoted to the comparing and sharing of ideas in solving problems with the central theme "It worked for us and it may work for you."

Sister Mary Oswalda, Chief Pharmacist at St. Joseph's Children's and Maternity Hospital, Scranton, Pennsylvania, receives the first place award in the Hospitals and Clinics competition of the National Pharmacy Week Window Display Contest from Dr. Robert P. Fischelis

Sister Mary Berenice, Chief Pharmacist at St. Mary's Hospital in St. Louis, receives an award for her contributions to hospital pharmacy from the C.H.A. Committee on Hospital Pharmacy Practice. The award was presented by Dr. George Archambault

Professional Services

1. Integrated educational programs for student and graduate nurses can be conducted by the hospital pharmacist. Such programs would include information relative to the use of investigational drugs, automatic stop orders on drugs, use of the formulary system and other matters which would facilitate the implementation of various policies pertaining to drugs.

2. The newer oral anti diabetic agents were discussed with particular emphasis placed on their therapeutic rationale and discriminate use.

3. Suggested ways by which many ideas and information presented during the institute week might be applied and implemented in one's own institution were offered.

Clinic Sessions

In an effort to promote group discussion of the program presented in terms of its application to the individual hospital needs, clinic sessions were conducted at the conclusion of each day's program. Small groups were formed composed of pharmacists from hospitals of similar bed capacities. A clinic session leader was chosen for each group to coordinate the discussions of that group. Each discussion leader reported to the institute coordinators after each session and also met for lunch the following day with the coordinators and other discussion leaders. Faculty members participated in the clinic sessions only by invitation of the groups.

The final session on Friday morning was a clinic session review conducted before the entire student body with a coordinator acting as moderator and discussion leaders as participants.

The speaker for the closing luncheon at the Salt Lake City Institute was Dean David Hiner, College of Pharmacy at the University of Utah. At the final luncheon for the Chicago Institute the speaker was Mr. Ray Brown, Superintendent, University of Chicago, Clinics, Chicago.

C.H.A. Institute Program

The program for the Catholic Hospital Association Institute was planned by the Committee on Hospital Pharmacy Practice which was headed by Sister M. Cherubim, O.S.F., Chief Pharmacist at St. Joseph's Hospital in Joliet, Illinois. At the annual luncheon for faculty and students Mr. Ray M. Kneifl was awarded a testimonial scroll; the Committee honored two sister-pharmacists—Sister Mary Berenice, S.S.M., Director of Hospital Pharmacy Services at the St. Mary's Hospitals in St. Louis and Sister Mary Ancilla, C.S.J., Chief Pharmacist at the St. Joseph's Hospital in Hamilton, Ontario, Canada. The first place award in the A.Ph.A.'s Hospital and Clinics competition of the National Pharmacy Week Window Display Contest was also presented at the luncheon to Sister Mary Oswalda, I.H.M., St. Joseph's Children and Maternity Hospital in Scranton, Pennsylvania.

The program included the discussion of a number of currently important hospital pharmacy topics such as "drug substitution," the use of medications in nursing homes, some legal aspects of hospital pharmacy operation, the use of tax-free alcohol and spiritous liquors, narcotics regulations, the pharmaceutical industry's viewpoint in the use of generic names of drugs, and a number of other important subjects. The program was coordinated by Mr. John James, Director of Continuing Education for the C.H.A.

At the closing business session Sister Mary Kateri, R.S.M. from St. Joseph's Hospital in Aurora, Illinois was introduced as the new member of the Hospital Pharmacy Practice Committee. The chairman of the Committee for the coming year will be Sister M. Alberta, S.P., Chief Pharmacist at St. Vicent DePaul Hospital in Brockville, Ontario, Canada.

On Continuing Education

. . . Practically the only group in American pharmacy which has really made available to its members a program of continuing education that is substantial, is the hospital pharmacy group which, in cooperation with the American Hospital Association and the Catholic Hospital Association, is conducting two or three Pharmacy Institutes annually which last a week and include an intensive program of lectures and discussions with direct participation on the part of the individuals who attend the Institutes. This is the type of adult and continuing education which, I believe, the Survey recommendations contemplated. Our colleges of pharmacy would be well advised if they would offer this type of training to pharmacists in their respective states, and the members of the profession would be well advised if they were to demand this kind of instruction and continuing education, because there is nothing that builds confidence and prestige in the individual practitioner of a profession as much as the indication to those who are served that their physician or dentist or pharmacist is keeping up-to-date with the rapid developments in medicine which they learn about through lay publications and, in fact, through the daily newspapers.

—From Report of the Chairman of the House of Delegates, J. Warren Lansdowne, at the Convention of the American Pharmaceutical Association, August, 1959.

as the president sees it—

VERNON O. TRYGSTAD, *Veterans Administration, Washington, D. C.*

► ONE OF THE MAJOR OBJECTIVES of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS is to improve the practice of hospital pharmacy. Three organizations in a united effort—the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, the American Pharmaceutical Association, and the American Hospital Association are in no small measure contributing to this objective through the Institutes on Hospital Pharmacy.

Suggested and inspired by Don Francke in 1945, Institutes on Hospital Pharmacy have been sponsored since 1946 by the American Hospital Association with the cooperation of the A.Ph.A., and ASHP. Originally conceived as an Annual Institute, the increasing demands by hospitals for enrollment of their pharmacists in these refresher courses has resulted in two institutes with similar programs being held each year since 1955. The record of participants and faculty members, chairmen and organizers, includes names of leaders in our profession who we can well be proud are associated with hospital pharmacy.

The AMERCAN JOURNAL OF HOSPITAL PHARMACY and past issues of its predecessor, the BULLETIN OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, graphically portray the growth and development of this successful means of continuing education for hospital pharmacists. It is not my purpose, therefore, to recount the history of the Institutes, but rather to comment on the continuing successful role of the three sponsoring organizations in promoting the good of all hospitals through the improvement of their pharmacy services.

The American Hospital Association conducts and administers the Institutes, presently under the capable direction of our own hospital pharmacist Joe Oddis, Staff Representative of the Council on Professional Practice of the American Hospital Association.

Along with Mr. Oddis, Paul Parker, Director of the Division of Hospital Pharmacy of the American Pharmaceutical Association, completes a two man team of dynamic leaders who, in this phase of their work, modestly call themselves Institute Coordinators. Coordinating—this is their term for weeks and months of planning, organizing, developing programs with the Program Committee of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, and the officers and members of all three organizations. Arranging for housing, dining facilities, class rooms, lecture halls, visual aids —these are details they take in stride. But the major accomplishment, perhaps, is the bringing together of a faculty—individuals expert in their fields—people in hospital pharmacy practice, from the American Pharmaceutical Association and AMERICAN SOCIETY OF HOSPITAL PHARMACISTS' memberships, plus educators, clinicians, administrators, all giving their best to make the five days of the Institute an outstanding educational experience for every student.

Packed into a full week of study are lectures, panel discussions, demonstrations, and work shops, on many of the aspects of pharmacy, pharmacy operations, and hospital pharmacy administration. All this is aimed directly at improving the quality and effectiveness, the efficiency and the economy, of pharmacy services in every hospital whose pharmacist attends.

There is more good news in the future of Hospital Pharmacy Institutes. The American Hospital Association in cooperation with the American Pharmaceutical Association and AMERICAN SOCIETY OF HOSPITAL PHARMACISTS is now planning an advanced Institute, in addition to the two annual basic Institutes. I know that many of the seasoned, experienced hospital pharmacists who have participated in past basic Institutes will welcome this new addition to our continuing educational opportunities.

Little recruitment is needed for enrollment at the Institutes—they're usually a "sellout," and unfortunately some late applications frequently must be refused. I predict that as the Institutes continue, maintaining, yet striving to improve the quality of their programs, more and more hospitals will be sending their pharmacists each year.

Next Summer and Fall—Institute time—seem a long way off. But it is not too early for you to start planning to attend. I suggest that each hospital pharmacist begin thinking about it now. That each Chief Pharmacist begin talking to his Administrator about the Institutes as part of the educational and travel plans for the coming year. Now is the time to plan—to include an Institute in your next year's budget—to plan it in your summer and fall schedule.

As your President sees it, it's a mighty good investment.

Vernon Trygstad

Representatives of ASHP Affiliated Chapters and members attend meeting of House of Delegates

1959 ANNUAL MEETING

► HOSPITAL PHARMACISTS from throughout the nation participated in the Sixteenth Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS held in Cincinnati, August 16-18. The meeting was held in conjunction with the Convention of the American Pharmaceutical Association and affiliated groups. The ASHP meetings, covering three days, include the House of Delegates with representatives of the Affiliated Chapters throughout the country, the Business Sessions, and presentation of papers. In addition, the SOCIETY'S Executive Committee held meetings in conjunction with the Annual Meeting. As a result, much of the activity carried on in hospital pharmacy in the United States is centered in the organization's Annual Meeting. Numerous activities, which have been given attention throughout the year by committees and officers, are presented to the membership at this time and actions taken reveal the thinking of hospital pharmacists today.

The Cincinnati meeting, which was attended by more than two hundred hospital pharmacists, was significant from the standpoint of the many areas of hospital pharmacy discussed, not only in the business sessions, but also with the presentation of papers. Outstanding reports were presented by the individual committee chairmen and officers and, from these reports, recommendations for action were considered. The resolutions adopted, along with specific actions taken, are reported in this issue of the JOURNAL. Further details regarding discussions will appear in the Official Reports section of the JOURNAL which is to be published this year in November, Therefore, only highlights of the meeting, including important actions taken, and a photographic record appear here. Beginning with this issue of the JOURNAL, papers presented at the Annual Meeting will be published during the next several months.

Business Sessions and House of Delegates

Opening the Meeting on Sunday afternoon, President Robert Bogash welcomed delegates and called their attention to the important work of this group. It is interesting to note that this was the tenth annual meeting of the House of Delegates and, in contrast to the

first, held in Jacksonville, Florida in 1949 with twenty delegates, the House was made up of sixty-seven delegates and five fraternal delegates representing forty-three of the SOCIETY's fifty-one Affiliated Chapters, members of the Executive Committee, and the chairmen of special committees. The five fraternal delegates, representing the various government services, participated and brought greetings from the Department of the Army, the Department of the Air Force, the Department of the Navy, the U. S. Public Health Service, and the Veterans Administration. The group was also fortunate to have Mr. Joseph Oddis representing the American Hospital Association and Mr. John James, representing the Catholic Hospital Association present for the meetings. A representative of the Canadian hospital pharmacists, Mr. Irwin Schwarz of Winnipeg, was also present and brought greetings on behalf of the Canadian Society of Hospital Pharmacists.

Highlights of the Business Sessions are listed below and, as noted above, the official text of the resolutions appears in this issue of the JOURNAL.

Professional Liability Insurance

—Approved making available a group professional liability insurance plan to the members of the SOCIETY.

This action was taken after several years' study by a Special Committee on Professional Liability Insurance. Reports have been received and studied carefully by the Executive Committee. Culminating the activity, Mr. Edward Hartshorn, Chairman of the Committee

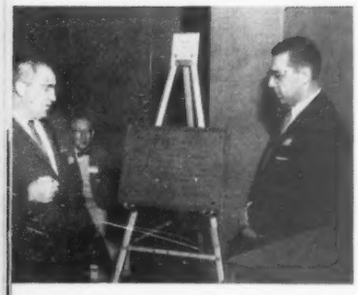
Panel on Safety Practices and Procedures. Left to right: R. David Anderson, Joseph Oddis, George Archambault, Frederick Wescoe (Nurse) and Robert Lantos

Retiring President Robert Bogash presents the gavel to President Vernon O. Trygstaa

Dinner honoring I. Thomas Reamer, 1959 Whitney Lecture Award recipient

I. Thomas Reamer receives plaque honoring him as 1959 Lecture Award Recipient. The presentation was made by Edward Superstine, President of the Michigan Society

Walter Frazier presents the first Whitney-Spease Scholarship Award of the ASHP to Harvey A. K. Whitney, Jr.



President Robert C. Bogash receives plaques honoring Dean Edward Spease and Mr. Harvey A. K. Whitney

for the past year, reported to the House of Delegates and an open discussion, coordinated by Mr. Grover C. Bowles, a past-president of the SOCIETY, and Mr. Charles James, a representative of Maginnis and Associates, the company designated to work with the SOCIETY in this area, answered questions from the group. The high interest shown in a group plan for professional liability insurance indicated the need for action at this Annual Meeting.

Amendments to By-Laws

—Approved five amendments to the SOCIETY's By-Laws. Two of these provide for succession of officers in the case of vacancies and provide for the Executive Committee to fill such posts until the next Annual Meeting. A third amendment simply provides for further coordinating membership with that in the American Pharmaceutical Association in order that delinquent members in both groups will be dropped from membership at approximately the same time.

Another amendment in By-Laws provides for official change in the name of the SOCIETY's publication from "The Bulletin of the American Society of Hospital Pharmacists," to the "AMERICAN JOURNAL OF HOSPITAL PHARMACY."

Statements of Joint Committee—A.H.A. and ASHP

—Approved the statements of the Joint Committee of the American Hospital Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS on the Pharmacy and Therapeutics Committee and the Liaison Committees with State Hospital Associations and State Hospital Pharmacy Societies. With regard to the latter, state affiliated chapters are asked to lend their support in the establishment of such committees.

Joint Committee—AACP and ASHP

—Approved establishing a Joint Committee of the American Association of Colleges of Pharmacy and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

Study of Re-Organization of Society

—Approved recommendations of President Bogash and President-Elect Trygstad to establish a committee to study re-organization of the SOCIETY.

In accordance with the addresses of the President and the President-Elect, specific recommendations were outlined and President Trygstad has named Mr. Walter Frazier, Chief Pharmacist at Springfield City Hospital, Springfield, Ohio, to head this important activity.

Recognition of Internship Experience for Licensure

—Asked the Committee on Laws, Regulations, and Legislation to work toward gaining full recognition of hospital pharmacy internship experience for licensure in all states.

Establishment of Scholarship Fund .

—Formally approved establishment of the Whitney-Spease Scholarship Fund of the ASHP and provided for making a presentation to the first recipient of such a scholarship.

This formal presentation, by Mr. Walter Frazier, who has served as Chairman of the Committee, is recorded here as a matter of historical interest:

"Members and Friends of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS present here today, you are called upon to bear witness to the formal dedication of the Whitney-Spease Scholarship Fund. The establishment of a program to encourage future careers in hospital pharmacy provides an opportunity to continue the progress which we recognize as our heritage from the lives of Dean Edward Spease and Mr. Harvey A. K. Whitney.

"History records the devotion to the profession and the magnitude of service to hospital pharmacy contributed by our two great pioneer leaders. The philosophy and the achievements of great men live on in the service and progress of others. Some of our members present here today received personal inspiration as students and colleagues of Edward Spease and Harvey Whitney. In these we do observe the inheritance of principles and ideals. We all gain much from the work that has gone on before us. You have the understanding, the full appreciation of the benefits which we derive in this way.

"It was Edmund Burke who said, 'The true way to mourn the dead is to take care of the living who belong to them.' We wish to perpetuate the inspiration of Edward Spease and Harvey Whitney. We pray that our successors will continue the commemoration of the heritage which will also be theirs.

"Ladies and Gentlemen, the Executive Committee of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS has asked me to make the following announcement. The presentation of the first award of the scholarship known as the "Whitney-Spease Scholarship of the ASHP" has been decided upon. The first one-year scholarship of $1,200 will be awarded now. The young man who is the first recipient of this scholarship is here, and I am delighted to call upon him and ask him to come forward, please. His name is Mr. Harvey A. K. Whitney, Jr.

"Mr. Whitney, on behalf of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, we are very pleased that you will be the first recipient of the Whitney-Spease Scholarship Fund. We are now presenting you with a check for the first part of that scholarship."

On accepting the scholarship, Mr. Harvey A. K. Whitney, Jr. expressed deep appreciation. He further indicated that he felt perpetuation of a fund of this type is a fitting way to honor Dean Spease and Mr. Whitney because their lives were devoted to hospital pharmacy and encouraging young people to enter the profession.

Dr. Austin Smith, President of the Pharmaceutical Manufacturers Association speaks on "Recovery Unlimited"

Presentation of Plaques and Awards

—Accepted plaques from the Ohio Society of Hospital Pharmacists and the Michigan Society of Hospital Pharmacists honoring Dean Edward Spease and Harvey A. K. Whitney. These presentations were made by Mr. Theodore Mink, President of the Ohio Society and Mr. Edward Superstine, President of the Michigan Society. The plaques, cast in bronze, offer a fitting

A scene from the Military Section which met during the A.Ph.A. Convention

memorial to these two deceased honorary members of the SOCIETY. Inscriptions on the plaques (see photos) read as follows:

Edward Spease, 1883 - 1957
"Father" of Hospital Pharmacy
A courageous pioneer
in the development of ideals
and educational standards
Hospital Pharmacy
Presented by the
Ohio Society of Hospital Pharmacists, 1959

Harvey A. K. Whitney, 1894 - 1957
American Hospital Pharmacist
A Dauntless Leader in developing organized
Cooperation and standards in hospital pharmacy
Presented by the
Michigan Society of Hospital Pharmacists, 1959

Another presentation highlighting the Meeting were the awards sponsored annually by the SOCIETY in cooperation with the American Institute of the History of Pharmacy. Two-year gift memberships and an autographed copy of "Pharmacy's Part in Society," were presented to Sister Mary Junilla, St. Francis Hospital, Santa Barbara, California, and to Sister Mary Rebecca, St. Benedict's Hospital, Ogden, Utah. Sister Junilla's essay was entitled "The Founding and Evolution of the Queen of Angels Hospital Pharmacy, Los Angeles, California," and Sister Mary Rebecca's contribution was entitled "A Brief History of the Utah Chapter of the American Society of Hospital Pharmacy." Unfortunately, neither of the recipients was able to be present for this Annual Meeting.

In making the presentations, Dr. Ernst W. Stieb, Secretary of the American Institute of the History of Pharmacy, expressed appreciation for the cooperation between the SOCIETY and the Institute and stated that he hoped the awards would stimulate interest in the history of our profession and an awareness of the importance of a particular branch of that profession, hospital pharmacy.

Appreciation

Final actions taken by the SOCIETY at this Annual Meeting included appreciation to organizations and individuals who have made outstanding contributions to hospital pharmacy during the past years. First, among these, was a resolution of appreciation to Dr. Robert P. Fischelis, retiring Secretary of the American Pharmaceutical Association.

Local Participation

Special appreciation should be extended to the local hospital pharmacists and the members of the Ohio Society who assisted with special events throughout the week. Arrangements for the buffet dinner on Sunday night, the Whitney Award Dinner on Monday, and the breakfast, which is a traditional ASHP event on Tuesday, were in charge of the Cincinnati group headed by Mr. Pat Murphy of Jewish Hospital, Cincinnati. Hostesses in the hospitality suite were provided by the Ohio Society with representatives of each of the affiliated chapters in Ohio participating. This activity was coordinated by Mr. Theodore Mink, President of the Ohio group.

Whitney Award Dinner

Again this year, the 1959 H.A.K. Whitney Award Lecture was a highlight for those attending the Annual Meeting. This year's recipient, Mr. I. Thomas Reamer, Duke Hospital, Durham, N. C., was honored by the Michigan Society. In tributes paid to Mr. Reamer by Dr. Don E. Francke representing the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, by Dr. Robert P. Fischelis of the American Pharmaceutical Association, by Mr. John T. James of the Catholic Hospital Association, and by Mr. Joseph Oddis of the American Hospital Association, the recipient was praised for his contributions to hospital pharmacy and to the profession. Mr. Reamer has dedicated his life to hospital pharmacy and is a past-secretary and a past-president of the SOCIETY.

The Award, in the form of a plaque, was presented by Mr. Edward Superstine, President of the Michigan Society of Hospital Pharmacists.

Mr. Reamer's lecture entitled "What Price Success in Hospital Pharmacy?" will appear in a forthcoming issue of the JOURNAL.

New Officers Installed and Nominations

Nominations for officers for the 1960-1961 term were presented by the Committee on Nominations headed by Mr. Allen V. R. Beck and approved at the final business session. Accordingly, nominees are as follows:

For President: Norman Baker, The New York Hospital, New York City, and Clifton J. Latiolais, Ohio State University Health Center, Columbus, Ohio.

For Vice-President: Peter Solyom, University of Chicago Clinics, Chicago, Ill., and Theodore Taniguchi University of Washington, Seattle, Wash.

The Secretary is elected for a three-year term by the House of Delegates on nomination from the Executive Committee. Mrs. Gloria Francke was elected at the 1958 Annual Meeting to serve for a three-year term. The Treasurer is also elected (by the membership) for a three-year term and begins a new term with the 1959 Annual Meeting. She will therefore serve for the 1959, 1960, and 1961 Meetings.

Officers installed by President Robert Bogash included: *President,* Vernon O. Trygstad, Washington, D. C.; *Vice-President,* Jack Heard, Los Angeles, Calif.; and *Treasurer,* Sister Mary Berenice, St. Louis Mo.

. . . resolutions

passed at 1959 Annual Meeting

Actions taken at the Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS *are the result of recommendations of its officers, committees, and delegates from Affiliated Chapters, and are expressed in the form of resolutions.*

The resolutions submitted by the various groups were considered by the Committee on Resolutions under the chairmanship of Mr. Clifton J. Latiolais, and including the following additional members: Mr. Jack Heard, Mr. Edward Superstine, and Mr. Vernon O. Trygstad. Also serving as Assistants to the Committee were the following: Mr. R. David Anderson, Mr. Louis P. Jeffrey, and Mr. Robert Lantos.

The resolutions were presented to the membership at the Annual Meeting and voted upon. The resolutions, as finally approved, are presented here.

1

Amendment to By-Laws—Election of Officers

RESOLVED that *Chapter I. Election of Officers, Article 1. Nomination of President, Vice-President and Treasurer* of the By-Laws of the SOCIETY be amended to include the following additional statement:

"The Executive Committee is empowered and directed to fill all vacancies in the list of candidates which may occur by death or resignation after the adjournment of the Annual Meeting of the SOCIETY and prior to the issuance of mail ballots."

Resolution Number 1 was adopted and will be incorporated in the By-Laws and published along with the Annual Reports in the November issue of the JOURNAL.

2

Amendment to By-Laws—Election of Officers

RESOLVED that *Chapter I. Election of Officers,* of the By-Laws of the SOCIETY be amended to include an additional Article to read as follows:

"*Article 6.* VACANCIES. In the event of death or resignation of the President, the Vice-President shall automatically assume the office of President. In the event of death or resignation of the President-Elect, the Vice President-Elect shall automatically assume the position of President-Elect. The Executive Committee is empowered and directed to fill vacancies which may occur due to the death or resignation in the offices of Vice-President, and Vice-President-Elect. If a vacancy in the office of the Secretary or Treasurer occurs due to death or resignation, the Executive Committee is empowered and directed to fill such vacancy until such time as a duly elected secretary or treasurer is installed.

Resolution Number 2 was adopted and will be incorporated in the By-Laws and published along with the Annual Reports in the November issue of the JOURNAL.

3

Amendment to By-Laws—Membership

WHEREAS the SOCIETY's current practice pertaining to the period of Membership should coincide more closely with that of the American Pharmaceutical Association; now therefore be it

RESOLVED that *Chapter V. Membership, Article 4. Period of Membership,* Paragraph 2, first sentence of the By-Laws of the SOCIETY, be amended to delete the words, "for one year." The paragraph would then read as follows:

"Any member in arrears for dues shall cease to be a member of the SOCIETY, provided that at least two weeks before his name is removed from the rolls, the Secretary shall send him a written notice of his delinquency together with a copy of the By-Laws pertaining to the subject."

Resolution Number 3 was adopted and the deletion mentioned will be noted in the By-Laws as published along with the Annual Reports in the November issue of the JOURNAL.

NOTE: The above resolution is not to be interpreted to indicate that within two weeks from the time a member is in arrears in dues, his name will be dropped from the membership rolls. Rather, the present By-Laws, as amended, provides (1) that when dues are overdue, the member must be notified at least two weeks before his name is removed from the rolls (this is *after* several months during which the member has received dues notices); and (2) that the SOCIETY is not obligated to carry the member on the rolls for a full year as provided in the former By-Law.

4

Amendment to By-Laws—Publication

RESOLVED that in all places where "The Bulletin of the American Society of Hospital Pharmacists" or "The Bulletin" are mentioned in *Chapter X. Publications,* and other chapters of the By-Laws of the SOCIETY, the words "THE AMERICAN JOURNAL OF HOSPITAL PHARMACY" and "THE JOURNAL" respectively, be inserted.

Resolution Number 4 was adopted and will be incorporated in the By-Laws and published along with the Annual Reports in the November issue of the JOURNAL.

5

Amendment to By-Laws—Publications

RESOLVED that *Chapter X. Publications, Article 3. Finances, (c)* of the By-Laws of the SOCIETY shall be deleted. This reads as follows:

"(c) A contribution of one dollar per member will be made annually from the SOCIETY funds toward publication of The Bulletin. The amount for each year shall be determined by the total membership as reported at the Annual Meeting."

Resolution Number 5 was adopted and the section noted above will be deleted from the By-Laws as published along with the Annual Reports in the November issue of the JOURNAL.

6

Professional Liability Insurance

WHEREAS members of the SOCIETY have indicated a need for professional liability insurance, and

WHEREAS it has been demonstrated that hospital liability insurance policies usually do not give complete protection to individual practitioners, now therefore be it

RESOLVED that the Executive Committee be directed to make available to the membership by January 1, 1960 a group professional liability insurance plan.

Resolution Number 6 was adopted and the Executive Committee has proceeded with a plan for providing professional liability insurance for members of the SOCIETY.

7

Statement on Pharmacy and Therapeutics Committee

RESOLVED that the SOCIETY approve the Statement on the Pharmacy and Therapeutics Committee as presented by the Joint Committee of the American Hospital Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and endorsed by the governing bodies of these respective organizations.

Resolution Number 7 was adopted and is being called to the attention of the membership.

8

Liaison Committees

WHEREAS the Board of Trustees of the American Hospital Association voted,

"To urge state hospital associations and state hospital pharmacy societies to establish liaison committees to consider all matters of mutual interest and concern; further

"To suggest to secretaries of state hospital associations and state hospital pharmacy societies that a careful examination be made of laws which regulate the operation of hospital pharmacies in their respective states, and of rules and regulations of the state board of pharmacy or other appropriate agencies, and further,

"To encourage liaison committees of hospital administrators and hospital pharmacists to establish cooperative and friendly relationships and suitable means of communication with the state board of pharmacy or other appropriate agencies, if deemed necessary," and

WHEREAS the Executive Committee of the SOCIETY, recognizing the significance and value of such liaison, approved these recommendations; now therefore be it

RESOLVED that these recommendations be transmitted to all the Affiliated Chapters with the request that they lend their support and cooperation toward implementing of these suggested recommendations.

Resolution Number 8 was adopted and is being called to the attention of the ASHP Affiliated Chapters.

9

Joint Committee AACP and ASHP

RESOLVED that the SOCIETY approve the establishment of a Joint Committee of the American Association of Colleges of Pharmacy and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

Resolution Number 9 was adopted and the Executive Committee has authorized the Secretary to work with the Secretary of the American Association of Colleges of Pharmacy toward establishing a Joint Committee of the AACP and the ASHP.

10

Reorganization of the Society

WHEREAS Mr. Robert Bogash in his presidential address indicated the need for a study of the administrative and financial structure of the SOCIETY, and

WHEREAS Mr. Vernon Trygstad in his presidential-elect address proposed the establishment of a committee to study and develop a possible reorganization plan for the SOCIETY, and

WHEREAS the latter proposal requests an authorization for retaining the services of a management consultation firm and for the establishment of a budget for the Committee's activities subject to the approval of the Executive Committee; now therefore be it

RESOLVED that the membership assembled at this Annual Meeting approve these proposals to proceed with a study for reorganizing the SOCIETY, and be it further

RESOLVED that the Executive Committee, the other committees concerned, Affiliated Chapters, and individual members lend their wholehearted support and cooperation to this extremely important SOCIETY activity.

Resolution Number 10 was adopted and is being referred to the Executive Committee for implementation. To provide for immediate functioning of a special committee to study reorganization, the Executive Committee has approved a budget of fifteen hundred dollars for the remainder of 1959.

11

Internship Experience for Licensure

WHEREAS Mr. Vernon Trygstad, in his presidential-elect address, has called attention to the lack of recognition of hospital pharmacy internship experience prior to examination for registration in five (5) states and but partial (50% or less) experience credit in nine (9) states, and

WHEREAS this specialty (hospital pharmacy) of the profession is now utilizing approximately 10% of the graduates of colleges of pharmacy annually, now therefore be it

RESOLVED that during the coming year, the SOCIETY, through the Committee on Laws, Regulations, and Legislation and the Executive Committee, prepare a brief on the need for full recognition of this professional specialty training, and be it further

RESOLVED that the Committee on Special Projects encourage Affiliated Chapters to explore problems relating to practical experience credit in states where problems exist, and be it further

RESOLVED that the above-named Committees cooperate with State Board and State Association officials with the intention of gaining full recognition of hospital pharmacy internship experience for licensure in all states as now exists in thirty-six states of the union.

Resolution Number 11 was adopted and is being referred to the Committee indicated.

12

Membership Award

WHEREAS the addition of new members is important to the welfare and growth of this SOCIETY and

WHEREAS an incentive is often necessary to the inspiration of an accomplishment or goal, now therefore be it

RESOLVED that the SOCETY establish a Membership Award in the form of a free membership in the SOCIETY for a period of three years, and be it further

RESOLVED that this Membership Award be presented at the Annual Meeting to that member of the SOCIETY who recruits and sponsors the largest number of new members during a SOCIETY year, with the chairman of the Committee on Membership and Organization excepted from this award.

Resolution Number 12 was referred to the Executive Committee for consideration.

13

Life Membership

WHEREAS the ASHP has no provision for a life membership in its Constitution and By-Laws, now therefore be it

RESOLVED that the Committee on Constitution and By-Laws study the possibility of establishing this classification under Chapter V of the By-Laws, and be it further

RESOLVED that a report of the findings of their study be made and submitted to the Executive Committee prior to the next annual meeting.

Resolution Number 13 was adopted and is being referred to the Committee on Constitution and By-Laws for study.

14

Committee Questionnaire Form

WHEREAS the SOCIETY has matured and expanded its membership and its activities, and

WHEREAS the need exists for orienting members into the organizational activities of the SOCIETY, now therefore be it

RESOLVED that the SOCIETY approve the use of a Committee Questionnaire Form to determine the interest of its members in the work of the current standing and special committees; and be it further

RESOLVED that it be distributed to all members of the SOCIETY for completion prior to the next annual meeting.

Resolution Number 14 was adopted and referred to the Executive Committee for implementation.

15

Student-Visitor-Exchange Program

WHEREAS the U. S. Department of State has officially approved sponsorship by the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS of a student-visitor-exchange program to promote the exchange of pharmacy students and recent graduates between foreign countries and the United States so as to enable these students to gain diversified experience in hospital pharmacy practice; now therefore be it

RESOLVED that the SOCIETY express its appreciation to the Department of State, the International Pharmaceutical Students' Federation, Dr. Jerome A. Reinstein, who is the U. S. Liaison Secretary of the IPSF, and to the International Pharmaceutical Federation for their cooperation in making this program possible; and be it further

RESOLVED that members of the ASHP be encouraged to participate in this two-way enchange program.

Resolution Number 15 was adpoted and is being called to the attention of the organizations mentioned above and the membership of the SOCIETY.

16

Whitney-Spease Scholarship Fund

WHEREAS the professional careers of Dean Edward Spease and Mr. Harvey A. K. Whitney contributed immeasurably to the advancement of hospital pharmacy practice and to the organization of the SOCIETY, and

WHEREAS the "Whitney-Spease Scholarship Fund of the ASHP" has been dedicated as a memorial to those honored members; now therefore be it

RESOLVED that each member and each Affiliated Chapter of the SOCIETY accept the invitation to participate in the perpetuation of this memorial by voluntary contributions to the "Whitney-Spease Scholarship Fund of the ASHP."

Resolution Number 16 was adopted and is being called to the attention of the ASHP Affiliated Chapters and SOCIETY *members.*

17

Slide Series on Accidental Poisoning

WHEREAS there is a continuing need to present to community groups throughout the nation talks on the problem of accidental poisoning in the home, and

WHEREAS members of the SOCIETY have been active in presenting talks on accidental poisoning, and

WHEREAS through the personal efforts of ASHP member Joseph Desiderio, Wyeth Laboratories has made available to hospital pharmacists a slide series to assist in presenting lectures on this subject; now therefore be it

RESOLVED that the SOCIETY express its sincere thanks to Wyeth Laboratories for their efforts in this project.

Resolution Number 17 was adopted and is being called to the attention of Wyeth Laboratories.

18

Drugs in Emergency Hospitals

WHEREAS there are approximately 1500 two hundred bed emergency hospitals pre-positioned throughout the nation, and

WHEREAS there are supplies of drugs in each of these emergency hospital units, some of which are daily losing potency, and

WHEREAS these drugs will eventually become impotent and useless in the day of emergency, now therefore be it

RESOLVED that the SOCIETY express interest in this problem and offer its services to the office of Civil and Defense Mobilization (OCDM) and local Civil Defense agencies to consider means of overcoming this problem of outdated and obsolescent drugs.

Resolution Number 18 was referred to the Committee on Disaster Preparedness for study.

19

Appreciation

RESOLVED that the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS express its sincere appreciation to:

The American Pharmaceutical Association, and the Division of Hospital Pharmacy for their valuable assistance to hospital pharmacy and to the SOCIETY during the past year;

The American Hospital Association and its Council on Professional Practice for their effective cooperation in furthering better hospital pharmacy practice;

The Catholic Hospital Association and its Committee on Pharmacy Practice, for the activities of the Association in promoting better pharmacy practice.

Resolution Number 19 was adopted and has been referred to the proper organizations and individuals.

20

Appreciation

RESOLVED that the SOCIETY express its sincere appreciation to the Ohio Society of Hospital Pharmacists and the Michigan Society of Hospital Pharmacists for their presentation of commemorative plaques in honor of Dean Edward Spease and Mr. Harvey A. K. Whitney respectively.

Resolution Number 20 was adopted and is being called to the attention of the Ohio Society of Hospital Pharmacists and the Michigan Society of Hospital Pharmacists.

21

Appreciation to Dr. William Heller

RESOLVED that the membership assembled at this Annual Meeting pay special tribute and express sincere thanks to Dr. William Heller for his selfless devotion to the American Hospital Formulary Service and to the SOCIETY.

Resolution Number 12 was adopted and has been referred to Dr. William Heller.

22

Appreciation to Dr. Fischelis

WHEREAS Dr. Robert P. Fischelis has been a constant source of sage counsel and an understanding friend of hospital pharmacy during his many years as Secretary of the American Pharmaceutical Association, and

WHEREAS his keen mind early perceived the true role of hospital pharmacy in health care, and

WHEREAS he has encouraged and guided the development of hospital pharmacy over the course of years, and

WHEREAS he conceived and established the Division of Hospital Pharmacy, thus forging strong bonds of mutual cooperation between the SOCIETY and the A.Ph.A., and

WHEREAS his contributions to hospital pharmacy and to the total profession have been too numerous to ehumerate, now therefore be it

RESOLVED that this assembly, on behalf of the entire membership of the SOCIETY, express to Dr. Robert P. Fischelis its sincere appreciation and heartfelt gratitude for his unselfish devotion and his contributions to hospital pharmacy, and for his guidance over the years, and be it further

RESOLVED that this token of appreciation be symbolized by a rising vote of gratitude to Dr. Robert P. Fischelis as he completes another assignment in his long illustrious career of service and dedication to his profession.

23

Appreciation to Committees and Individuals Responsible for Annual Meeting

RESOLVED that the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS express its sincere thanks and heartfelt appreciation to all the thoughtful individuals, committees, and organizations who extended to the SOCIETY's members and guests the excellent program arrangements, the many fine services, accommodations, and entertainment features of this Sixteenth Annual Meeting held in Cincinnati.

Resolution Number 23 was adopted and is being called to the attention of the proper individuals and organizations.

News

Hospital Pharmacists Nominated For A.Ph.A. Offices

Allen V. R. Beck

Grover C. Bowles

MR. ALLEN V. R. BECK AND MR. GROVER C. BOWLES, JR. were among those nominated to offices of the American Pharmaceutical Association at the recent Convention in Cincinnati, Ohio. Both nominees are past presidents of the ASHP. Mr. Beck, Chief Pharmacist at Indiana University Medical Center, Indianapolis, Indiana, has been nominated for Second Vice-president of the Association. Mr. Bowles, Director of Pharmacy Services, Baptist Memorial Hospital, Memphis, Tennessee, has been nominated for re-election to a three-year term on the Council of the A.Ph.A. Hospital Pharmacists are urged to vote in order to assure representation on the Council.

A complete list of nominees includes:

For President: Ronald V. Robertson, Spokane, Washington; Stephen Wilson, Detroit, Michigan; Thomas D. Wyatt, Spartanburg, South Carolina.

For First Vice-president: Robert J. Gillespie, St. Joseph, Michigan; Mearl D. Pritchard, Buffalo, New York; George L. Scharringhusen, Jr., Park Ridge, Illinois.

For Second Vice-president: Allen V. R. Beck, Indianapolis, Indiana; William J. Dixon, Oak Hill, West Virginia; John J. Dugan, New Haven, Conn.

For nomination to the Council (three to be elected): Roy A. Bowers, Newark, N. J.; Grover C. Bowles, Jr., Memphis Tennessee; Louis J. Fischl, Oakland, California; Nicholas S. Gesoalde, Great Neck, N. Y.; Henry H. Gregg, Minneapolis, Minnesota; John B. Heinz, Salt Lake City, Utah; Harold C. Kinner, Ft. Myers, Florida; Linwood F. Tice, Philadelphia, Pa.; Paul W. Wilcox, West Point, Pa.

► NATIONAL PHARMACY WEEK will be observed this year during the week of October 4-10. Hospital Pharmacists are urged to participate in this concerted effort in public relations. Materials are available from A.Ph.A. Headquarters in Washington, D.C., or you may use your own original ideas to tell the story of Pharmacy to the public. Awards are given for the best displays in each of four catagories: Retail pharmacy, Colleges of pharmacy, Public exhibits, and the Hospital and Clinics division. Full particulars are found in the August 1959 issue of the Practical Pharmacy Edition of the *Journal of the American Pharmaceutical Association.*

► Mr. Vernon O. Trygstad, President of the ASHP, attended the American Hospital Association Convention in New York City August 24-27. On Thursday, August 27, President Trygstad represented the SOCIETY at the President's luncheon.

► THE AMERICAN HOSPITAL ASSOCIATION named Mr. Frank S. Groner as President-elect at the recent convention in New York City. Mr. Groner has actively participated in the A.H.A. program for twenty years, and has just completed a term as President of the American College of Hospital Administrators. He is the Administrator of the Baptist Memorial Hospital in Memphis, Tennessee.

A.Ph.A. Student Section Appoints New Liaison Secretary To IPSF

Hospital pharmacists and exchange students in pharmacy will be pleased to learn that Carl L. Vitalie of the University of Southern California School of Pharmacy has been appointed United States Liaison Secretary to the International Pharmacy Students Federation.

Mr. Vitalie is immediate past president of the Student Section of the American Pharmaceutical Association, and succeeds Dr. Jerome A. Reinstein, first U. S. Liaison Secretary to the IPSF who held the position for five years.

The appointment followed action by the Student Section making the Liaison Secretary to the IPSF an officer of the Student Section, thus assuring closer cooperation between the international and national groups.

"Under the IPSF program, pharmacist and pharmacy student international exchanges increased greatly this year" stated Dr. Reinstein, "and are expected to increase even more because of official sponsorship of the program by the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and the American College of Apothecaries, recently approved by the State Department.

Pharmacist and students interested in going abroad or in being hosts to a foreign pharmacist may write

for information and applications to Mr. Vitalie at the University of Southern California School of Pharmacy, Los Angeles, California.

St. Mary's Hospital Awards Residency and Internship Certificates

On Wednesday, June 17, the Sisters of St. Mary, St. Louis, Missouri, awarded certificates of Internship and Residency in Hospital Pharmacy to the students completing the program.

Sister Mary Francis Claire, the Administrator of St. Mary's Hospital, St. Louis, presented Internship Certificates to Sister Mary Muriel and Sister Marv Paulette, Medical Mission Sisters, and to Mr. B. Phillip Favaro, of Brooklyn, N.Y. A certificate of Residency was presented to Sister Julia Marie, a Sister of St. Mary.

Sister Mary Berenice, Director of the Internship and Residency Programs of the St. Mary's Hospitals, gave the opening address at the ceremonies, which was attended by the Medical Mission Sisters, Sisters of St. Mary, the faculty of the St. Louis College of Pharmacy and Allied Sciences, and many of the staff pharmacists of the hospitals operated by the Sisters of St. Mary in St. Louis and St. Charles.

► The Academy of Hospital Counselors met as a corporate body for the first time during the Convention of the American Hospital Association in New York City. Charles U. Letourneau, M.D., of Chicago, was elected President for the coming year. Other officers elected were Louis Block, First Vice-President, John Steinle, Second Vice-president, and Tracy Hare, Secretary-Treasurer. Named to serve on the Board of Governors with these officers were Alfred Maffly, Fred MacNamara, and Edward Thompson, M.D.

► Surgeon General Leroy E. Burney has announced the transfer of the headquarters staff of the Public Health Service's Division of Indian Health to Denver, Colorado. The Division formerly had offices in Washington, D.C. The move, designed to facilitate services to the Indian health program, will be completed by October 1, 1959.

American Society Of Pharmacognosy Formed

A new society, The American Society of Pharmacognosy, was created at the recent Plant Science Seminar held at the University of Illinois, August 7 to 10. By unanimous approval of the members present at the Seminar, the Constitution and By-Laws were adopted as the first step in the formation of the Society. Membership is open to graduate students and workers in other nations as well as Pharmacognosists in education and industry. Those people interested in charter membership are requested to write to Dr. Frank L. Mercer, St. Louis College of Pharmacy, St. Louis, Missouri..

► Mr. Eugene Garfield, editor of *Current Contents*, has announced a new service of supplying research articles to scientists and other interested workers. The new service, Original Article Tear Sheets (OATS), will enable scientists to obtain tear sheets of articles appearing in more than 700 journals.

William S. Apple Named Secretary of A.Ph.A.

William S. Apple

Dr. William S. Apple has succeeded Dr. Robert P. Fischelis as Secretary and General Manager of the American Pharmaceutical Association. Dr. Apple served as Secretary-designate and worked closely with Dr. Fischelis during the past year preparatory to assuming his new position.

Dr. Apple was born in Spokane, Washington and grew up and was educated in Duluth, Minnesota. After serving in the Army from 1941 to 1946, acheiving the rank of Major, he attended Wayne State University in Detroit, Michigan, and then the University of Wisconsin, where he earned a Bachelor of Science degree in pharmacy. He subsequently was awarded a Master's degree in Business Administration and a Doctor of Philosophy in Pharmacy Administration, the first such degree awarded by the University of Wisconsin.

Dr. Apple brings to his position as Secretary of the A.Ph.A. a background as an educator and one of active participation in professional societies. He has served as Vice-President and President of the Wisconsin Pharmaceutical Association and delegate to the A.Ph.A. House of Delegates. At the University of Wisconsin he held the position of Associate Professor and Head of the Department of Pharmacy Administration.

The Decennial Meeting of the United States Pharmacopoeia Convention has been advanced two weeks. The new meeting date is March 29 and 30, with preliminary conferences on March 28. The change in date was necessary so as not to conflict with two simultaneous meetings, namely, The Federation of American Societies for Experimental Biology and the American Chemical Society. The meetings will be held in the Statler Hilton Hotel, Washington D.C., as previously planned.

News

► Dr. Alex Berman, who has recently returned from a year's study in Europe, is the author of an article published in the *Pharmaceutical Bulletin,* a publication of May & Baker, Ltd, Great Britian. The article, "Some Historical Aspects of Hospital Pharmacy," deals with the development of this specialty in England, France, and the United States, and also touches on the history of hospital formularies. Dr. Berman is an Assistant Professor of Pharmacy at the University of Michigan.

► Smith, Kline and French Foundation has announced the "Matching Gifts for Hospitals" program, believed to be the first of its kind. Under this program, the Foundation will match—up to $2,000—the contributions to accredited hospitals by employees of Smith Kline and French Laboratories.

Dr. Edwin L. Crosby, Executive Vice-President of the American Hospital Association, has been awarded the Distinguished Service Award of the AHA. The award, the highest offered by the AHA, was presented by Mr. Ray Amberg, Immediate Past-President of the Association.

Dr. Edward G. Feldmann To Join A.Ph.A. Staff

Dr. Edward G. Feldmann will join the staff of the American Pharmaceutical Association in the early Fall of this year as the associate of Dr. Justin L. Powers. Dr. Feldmann will work with Dr. Powers in the completion of the revision of the Eleventh Edition of the *National Formulary.* Dr. Feldmann has been named by the Council of the A.Ph.A. to succeed Dr. Powers as the Chairman of the Committee on National Formulary and Director of the Revision of the *N.F.,* as well as Editor of the Scientific Edition of the *Journal of the American Pharmaceutical Association,* and of *Drug Standards,* when Dr. Powers completes his term of office.

Griffenhagen Assumes New Post With A.Ph.A.

Mr. George B. Griffenhagen, formerly Curator of the Division of Medical Sciences at the Smithsonian Institution, Washington, has been appointed Director of the Division of Communications of the American Pharmaceutical Association. The appointment was made by Dr. William S. Apple, Secretary of the, A.Ph.A., and confirmed by the Council of the A.Ph.A. at the closing session of the recent convention in Cincinnati. Concurrent with this appointment, Mr. Griffenhagen was named managing editor of the Practical Pharmacy Edition of the *Journal of the American Pharmaceutical Association.*

In the newly established post of Director of the Division of Communications, Mr. Griffenhagen will assume administrative responsibility for the public relations program of the Association, including National Pharmacy Week, the convention activities, and the Association's library and museum.

► Dr. Robert T. Stormont, resigning Director of the Department of Therapy and Research of the American Medical Association and chairman of the AMA Advertising Committee, was honored at a luncheon in Chicago on August 10 by Harry C. Phibbs, Dean of Pharmaceutical Advertising Men. Also present at the luncheon were Dr. Johnson F. Hammond, editor of the *Journal of the American Medical Association,* and members of the medical and advertising departments of G. D. Searle and Company, Chicago.

► Mrs. Joseph E. Birmingham of Seattle, Washington, has been named Secretary of the Women's Auxiliary of the American Pharmaceutical Association. Mr. Joseph Birmingham is Chief Pharmacist at the Veterans Administration Hospital in Seattle.

Other officers elected at the Annual Meeting in Cincinnati were Mrs. William P. Cusick of Detroit, Michigan, President; Mrs. George L. Webster of Wilmette, Illinois, First Vice-president; Miss Thea Gesoalde of New York City, Second Vice-president; Mrs. Clifton Miller of Fargo, North Dakota, Treasurer; Mrs. Earl R. Serles, Brookings, South Dakota, Historian.

► The 1960 Convention of the Catholic Hospital Association will be held in Milwaukee, Wisconsin, May 30 through June 2.

► The American Foundation for Pharmaceutical Education has just distributed Fellowship grants to 29 universities to provide awards to 72 graduate students selected by the Board of Grants of the Foundation.

These awards to outstanding scholars, majoring in pharmacy and closely related fields, amount to $130,000.

171 Foundation supported Fellows are now teaching in pharmacy colleges and 135 others, who earned their Ph.D. degree as AFPE Fellows, are engaged in scientific and professional work in the drug industry, Federal government, and in university and hospital research programs.

SELECTED PHARMACEUTICAL ABSTRACTS

and summaries of other articles interesting to hospital pharmacists

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edited by CLIFTON J. LATIOLAIS, HENRY J. DEREWICZ *and* LEO F. GODLEY

COLORIMETRIC DETERMINATION OF LOCAL ANESTHETICS

The Colorimetric Determination of Certain Local Anesthetics with Sodium 1,2-Naphthoquinone-4-sulfonate, Feldmann, E. G., J. Am. Pharm. Assoc., Sci. Ed. 48:197 (Apr.) 1959. (Division of Chemistry, American Dental Association, Chicago, Ill.)

A quantitative determination for those local anesthetics containing a primary amine group is presented. The method is based upon the reaction of sodium 1,2-naphthoquinone 4-sulfonate with primary amines. In addition to simplicity, precision and accuracy, the method also offers freedom from interference by secondary and tertiary amines. Specific application of the above colorimetric method is made to a commercial anesthetic mixture.

HENRY J. DEREWICZ

DETERMINATION OF ERGOT ALKALOIDS

Separation and Determination of Ergot Alkaloids by Paper Chromatography, Pohm, M., Arch. Pharm. 9:468 (1958) (Journal of Pharmacy and Pharmacology 11:248 (Apr.) 1959)

In this process the following ergot alkaloids can be identified and determined: ergometrine, ergotamine, ergosine, ergocristine, ergocornine and ergocryptine and their respective dextro isomers. The chromatography is carried out on a strip 15 cm. by 45 cm. of Whatman No. 1 filter paper which has been impregnated with formamide, with the mobile phase descending. This latter consists of a mixture of solvents of low polarity—carbon tetrachloride-chloroform-benzene in a ratio 7:2:1 or carbon tetrachloride-n-dibutyl ether, 8:2. After the solvent front has traveled about 35 cm., the chromatography is stopped and the positions of the spots of alkaloids localized in ultra-violet light. The limit of sensitivity of this observation by means of fluorescence is about 0.2 μg. of a alkaloid. A method is described of identifying the alkaloids (if necessary) by comparison with the movement of authentic samples. The quantitative determination is carried out by cutting out the spots and shaking with a known amount of 1 percent tartaric acid solution and the p-dimethylaminobenzaldehyde-sulphuric acid reagent of the *British Pharmacopoeia* until the paper has disintegrated, and measuring the extinction of the blue solution at 625 *mu*. In this preliminary separation certain alkaloids which are not separated require further chromatography. The water-soluble alkaloids ergometrine and ergometrinine remain at the starting point. The spot is cut out and secured in a fold in a second formamide-impregnated strip and developed with a benzene-pyridine (6:1) mixture. The water-insoluble alkaloids ergocristine and ergocornine and ergocristinine and ergocorninine require further chromatography and are treated in the same way as the water-soluble alkaloids. A process for the hydrolysis of the ergot alkaloids and the separation and quantitative determination of the resulting amino acids valine, leucine and phenylalanine is descrbed.

AUTHOR'S SUMMARY

CHLORINDANOL, A NEW ANTISEPTIC AGENT

The Biological Properties of Chlorindanol, A New Antiseptic Agent, Bailey, J. H., Caulston, F. and Berberian, D. A., J. Am. Pharm. Assoc., Sci. Ed. 48:212 (Apr.) 1959. (Biology Division, Sterling-Winthrop Research Institute, Rensselaer, N. Y.)

The antimicrobial activity of chlorindanol (7-chloro-4-indanol) against bacteria, fungi, yeast-like organisms and the tubercle bacilli is presented. Results of testing procedures indicate the compound to be rapidly lethal to vegetative bacteria in concentrations as low as 1:1000-1:3000. In evaluating the compound against 10 species of gram-positive bacteria and 20 species of gram-negative bacteria, chlorindanol was in general somewhat more active against gram-negative than against gram-positive bacteria. Of interest was the fact that the difference between bacteriostatic concentration and bacteriocidal concentration was always small and in a number of instances the values were identical, suggesting that the action of the compound was rapid even at limiting dilutions. The compound was noted to be ineffective against spores of *Bacillus subtilis* but was effective against a strain of *C. perfringens*. Effectiveness was also demonstrated against *Candida albicans, Endamoeba histolytica* and *Trichomonas muris*. The compound is soluble in dilute alkali and in 95% alcohol to 5% w/v. It has limited water solubility. Systemic toxicity is low and it is well tolerated by skin, eyes and genital mucosa. In addition the compound is non-allergenic and appears to be suitable for use as topical antiseptic or sanitizer.

HENRY J. DEREWICZ

MENTHOL ANALYSIS

Paper Chromatographic Evaluation of Menthol, Hopkins, L. V., Blake, M. J., J. Am. Pharm. Assoc., Sci. Ed. 48:222 (Apr.) 1959. (School of Pharmacy, North Dakota Agricultural College, Fargo, N. D.)

A method for the determination of menthol is proposed which may be performed in the presence of thymol and camphor. Initially, menthol is isolated from other constituents of pharmaceutical preparations by an ascending paper chromatographic separation. Separation of the menthol is accomplished by conversion of menthol to a xanthine derivative which is isolated and treated with p-aminobenzaldehyde. The intensity of the red color which develops is dependent upon the menthol concentration. A Klett-Summerson colorimeter is used to measure light transmittance. The menthol concentration is then determined from a standard curve. The xanthine derivative has the advantage of reducing the volatility of menthol during chromatography.

HENRY J. DEREWICZ

CONGO RED AND EVANS BLUE INJECTIONS

Report on the Preparation of Solutions for Injection with Dyestuffs. Brunnhofer, H. and Steiger, K., Pharm. Acta Helv. 34:110 (Feb.) 1959.

This study was undertaken because of the lack of information concerning stable solutions of dyes for injection. Congo Red and Evans Blue solutions were investigated for stability from the point of view of change in pH and concentration under conditions of variable sterilization methods and a series of gaseous atmospheres in the ampuls. The sterilization methods used were: free flowing steam (30 min. at 100°C.), autoclaving (20 min. at 115-120°C.) and tyndallization (heating at 70°C. for one hour for three consecutive days.) The gases tested were oxygen, nitrogen and carbon dioxide.

The authors recommend the following formulas as the most stable:

1. Congo Red Injection (isotonic and buffered)

Congo Red	10.0 Gm.
Mannitol	48.0 Gm.
Dibasic Sodium Phosphate	0.95 Gm.
Monobasic Potassium Phosphate	0.18 Gm.
Water for Injection, ad.	1,000 ml.

Sterilization: 120°/20 min.—autoclave
pH 7.3 - 7.4
Ampul filled with nitrogen

2. Evans Blue Injection (isotonic)

Evans Blue	5.0 Gm.
Mannitol	46.5 Gm.
Water for Injection, ad.	1,000. ml.

Sterilization: 120°/20 min.—autoclave
pH 6 - 6.5
Ampul filled with nitrogen

RUPERT SALISBURY

COLORIMETRIC ASSAY OF PHENOTHIAZINE DERIVATIVES

A Colorimetric Assay for Unoxidized Phenothiazine Derivatives: A New Complex Salt, Ryan, J. A., J. Am. Pharm. Assoc., Sci. Ed. 48:240 (Apr.) 1959. (Wyeth Institute for Medical Research, Philadelphia, Pa.)

The failure of former methods of assay of parent phenothiazine compounds and their derivatives, which were based upon the use of oxidizing agents, to provide an adequate measure of intact material during stabilization studies has led to the development of a new assay procedure. The new method, based on the lauryl sulfate salt of the specific palladium phenothiazine derivative complexes, provides a colorimetric means of following oxidative decomposition at the sulfur atom of such compounds as promazine, promethazine and chlorpromazine. Routine evaluation of raw material condition and product stability under accelerated storage is simplified. The need for initial separation is eliminated in most cases. Spectra, postulated structure, and reactions of these complexes are discussed.

HENRY J. DEREWICZ

IDENTIFICATION OF FLUORESCEIN AND PHENOLPHTHALEIN DERIVATIVES

A Chromatographic Technique for the Identification of Fluoroescein and Phenolphthalein Derivatives, McMillion, C. R., Dunning, H. A., J. Am. Pharm. Assoc., Sci. Ed. 48:249 (Apr.) 1959. (Research Laboratories, Hynson, Westcott and Dunning, Inc., Baltimore, Md.)

A chromatographic separation and identification of 20 fluorescein and phenolphthalein derivatives is presented. Because of the slight solubility of these compounds in water and the high solubility of their sodium salts in water, general chromatographic procedures based on the two phase system could not be used. However, the use of 0.5 M phosphate buffers provided a solvent system possessing many inherent advantages. In addition to a list of Rf values for the various compounds in 0.5 M phosphate buffers, methods are described for cellulose column chromatography.

HENRY J. DEREWICZ

THIOGLYCOLLATE STABILITY

Effects of Method of Preparation of Solutions, pH and Temperature Upon the Oxidation of Thioglycollate, Cook, A. M. and Steel, R. J., J. Pharm. and Pharmacol. 11:216 (Apr.) 1959. (Department of Pharmaceutics, School of Pharmacy, University of London, Brunswick Square, London, W. C. 1)

The pH of, and amount of oxidation occurring in, thioglycollate solutions is influenced by the method of preparation of the solutions from thioglycollic acid. When heat is employed to effect solution, the oxidation of the resultant thioglycollate increases with increase in pH and temperature of storage. Solutions prepared without heat may exhibit a more alkaline reaction than expected. Storage of such solutions causes a fall in their pH, the extent of which is determined by the temperature and time of storage. The effect of storage at different temperatures upon the oxidation of thioglycollate is not as great with unheated solutions as in heated solutions. Oxidation of thioglycollate is increased by dilution. The dithiodiglycollate, produced on oxidation of thioglycollate, itself undergoes decomposition in alkaline conditions.

HENRY J. DEREWICZ

ULTRAVIOLET STERILIZATION

Ultra-Violet Radiation for Water Treatment, Stiff, F. R.: 22:123 Chemical Products (April) 1959. (Hanovia Lamps Divisions, Englehard Industries, Ltd.)

The author suggests the use of a cold cathode mercury lamp emitting ultraviolet radiation of 2540 A. U. for water sterilization when low flow rates are involved. This radiation is highly bactericidal and the lamp has an effective life of 2500 to 3000 hours.

The lamp is surrounded by an outer quartz sheath to provide better mechanical strength for a water sterilizer and to insulate the discharge from sharp ambient temperature changes which would reduce the ultraviolet output from the lamp.

Possible pharmaceutical uses would be:

1. When the water to be used is softened by resin exchange, since the water may not remain bacteriologically pure during the time the residual chlorine in the raw water is being removed. However, if the treated water is to be used for manufacturing parenterals, pyrogens must still be removed by distillation.
2. For inhibiting the build-up of bacterial slimes inside storage tanks. Dilute syrups can be kept longer in this way.

The author also discusses several factors having a bearing upon fluid sterilization by ultraviolet radiations, such as the optical density of the fluid, the wave length emitted by the source, the effect of suspended matter and dissolved salts, ambient air and fluid temperature, mains voltage variation and the inspection, cleaning and maintenance of ultraviolet lamps and quartz jackets.

ROBERT L. RAVIN.

PREPARATION OF THICK EXTRACT OF BELLADONNA

The Expediency of the Claim to and the Possibility of Obtaining Clear Aqueous Solutions of the Thick Extract of Belladonna, Muraviev, I.A., Nasarova V.G., Aptechnoe Delo (U.S.S.R.) 8, 1:74 (Jan.-Feb.) 1959

According to the 8th Edition of the *Soviet Pharmacopoeia*, the thick extract of belladonna is to be prepared by maceration in chloroform water. After thickening the extract until a quantity which is equal to one-half of the initial belladonna drug is obtained, a double quantity of alcohol 95% is added. In this way pectin, gum, and other ballast substances are precipitated. However, this purification of belladonna extract is regarded as not sufficient as by dilution a water turbid solution result.

The authors found the following method for obtaining thick belladonna extracts yields clear solutions when the extract is diluted by water: After distilling away the alcohol utilized for removal of ballast substances, the double quantity of water is added. In this way the ballast substances which resisted the purifying action of alcohol are caused to settle down. The further procedure is as usual, i.e. the extract is filtered, the remainder on the filtering paper then washed with small quantities of water until no more alkaloids can be ascertained in the filtrate, after which the extract is thickened in a vacuum-apparatus.

Considering that the above mentioned operation presents a complication in the preparation of the extract, the authors then discuss the appropriateness of the pharmacopoeial claim to belladonna extracts giving clear solutions when diluted with water. As a component of tablets, powders, pills, ointments, and other solid or semisolid dispensing forms, the belladonna extract with a small content of ballast substances causes no difficulties. There is also no objection against availing of the extract in solutions, infusions, decoctions, and other liquid forms as the usual dilution is very great (1:1000), producing a very slight precipitate only which makes the solution somewhat turbid. The authors therefore conclude that the pharmacopoeia should allow the use of turbid solutions of the extract of belladonna.

HUBERT ZACEK

MICROBIAL CONTAMINATION OF TABLETS

Microbiological Analysis of Tablets in the Process of Their Manufacture, Kondratieva, T.S., Aptechnoe Delo (U.S.S.R.) 8, 2:28 (March-April) 1959.

It was found by microbiological tests carried out on 22 kinds of tablets that all tablets, including all materials used as their components, are invaded by saprophytic microorganisms. As to the initial substances, the plant powders are more susceptible to contamination than the chemical ones. On the other hand, even the sulfonamides are a medium for the growth of microorganisms. Bacterial contamination was furthermore ascertained in starch and talc utilized as filling substances. As regards the finished tablets, those made of plant powders were again most invaded. When studying separate phases of the tablet making, most of the microbes are found in the humid granulate, their number then drops in the drying stage; it increases in further operations with exception of the pressing which causes no appreciable changes in microbial contamination. In these investigations, the most frequently found microorganisms were pigmentic cocci, some bacilli, molds, etc.

According to the view of the author these microbial contaminations are caused by insufficient hygienic conditions in the working rooms and equipment. The contamination of air is also to be taken into account.

HUBERT ZACEK

ABSORPTION OF AMMONIATED MERCURY

A Radiometric Method for Determination of Absorption of Ammoniated Mercury from Ointments, Sorby, D. and Plein, E., J. Am. Pharm. Assoc., Sci. Ed. 48:308 (June) 1959. (University of Washington, College of Pharmacy, Seattle, Wash.)

Radiometric methods simplify the analysis of drugs absorbed by tissues following topical application, previously made difficult due to the small amount of drug absorbed and the presence of interfering biological materials. The methods are suitable and applicable for testing dermatological vehicles for their effect on the absorption of drugs.

Ammoniated mercury 5%, prepared from mercuric chloride—Hg^{203}, and petrolatum 3% were incorporated into (a) white ointment, (b) hydrophilic petrolatum and (c) a combination of stearyl alcohol 3%, white wax 8%, wool fat 15%, and white petrolatum 74%. Following a 24 hour period of topical application on intact and abraded skin of rats, a fine suspension of kidney tissue from each sacrificed rat, was prepared for assay of mercury contact by beta and gamma radiometric procedures. Statistical analysis found no significant difficiencies between the two procedures on intact and abraded studies.

NORMAN HO

ACETOPHENETIDIN ASSAY

The Determination of Acetophenetidin in Tablet Mixtures: A Potentiometric Method, Baldinus, J. and Rothberg, I., J. Am. Pharm. Assoc., Sci. Ed. 48:318 (June) 1959. (Smith, Kline and French Laboratories, Philadelphia, Pa.)

A simplified, accurate, and rapid analysis of acetophenetidin is presented. Potassium bromide was used to catalyze the diazotization reaction and the resulting p-phenetidin was titrated potentiometrically with sodium nitrite. Substances generally used in combination with acetophenetidin such as caffeine, aspirin, salicylic acid, codeine, amphetamine, amobarbital, and common tablet excipients (starch, talc, magnesium stearate, calcium sulfate, and guar gum) did not interfere with the analysis.

NORMAN HO

BACTERIAL ACTION OF PHENOLS

The Interaction of Phenolic Compounds with Bacteria, Part I, Hexylresorcinol and Escherichia coli, Beckett, A. H., Patki, S. J. and Robinson, A. E., J. Pharm. and Pharmacol., 12:360 (June) 1959. (Chelsea School of Pharmacy, Manresa Road, London, S.W.3.)

Various quantitative features of the interaction of hexylresorcinol with *Escherichia coli* were described. The uptake of hexylresorcinol by and the release of cell exudate from *E. coli* were investigated in solutions of known concentration of drug by varying individually the contact times and temperatures. The amount of hexylresorcinol bound by *E. coli* was found to be dependent upon the initial concentration of the phenol in solution. Buffering some solutions with phosphate did not alter the amount of hexylresorcinol bound from aqueous solutions which were unbuffered. Initially bound molecules facilitated further binding of the hexylresorcinol. The amount bound by intact cells compared with the small proportion bound by isolated cell walls provided further evidence that the cytoplasmic membrane is involved in the binding. The amount of cell exudate liberated from suspensions of the organisms was influenced by the initial concentration of hexylresorcinol. Marked changes in the light scattering properties of the suspensions of *E. coli* occurred after the addition of hexylresorcinol, depending on the concentration of drug and the time of contact. These changes are discussed more completely in Part III.

ED OSBORNE

BACTERIAL ACTION OF PHENOLS

The Interaction of Phenolic Compounds with Bacteria, Part II: The Effects of Various Substances on the Interaction of Hexylresorcinol and Escherichia Coli, Beckett, A. H., Patki, S. J., Robinson, A. E., J. Pharm. Pharmacol., 11:367 (June) 1959 (Chelsea School of Pharmacy, Manresa Road, London, S.W. 3.)

By utilizing heat killed and butanol treated suspensions of *E. coli*, the uptake of hexylresorcinol and associated release of cellular constituents were examined. Suspensions of heat killed organisms showed little significant increase in the amount of cell exudate liberated during the reaction with hexylresorcinol over the amount of exudate liberated during the heat treatment alone. Similar results with butanol treated organisms lead the authors to conclude that the amont of cell exudate released from bacteria depended on the treatment used and that not all the exudate was released under one particular set of conditions. The inclusion of sodium chloride in hexylresorcinol solutions added to suspensions of *E. Coli* produced increased turbidity, indicating enhanced activity of the phenol. When Cetomarcrogol (Polyethylene Glycol 1000 Monoacetyl Ether) was added to suspensions of E. Coli in hexylresorcinol solutions, the speed of uptake of hexycresorcinol was hardly affected, whereas the amount of hexylresorcinol bound was reduced in proportion to the relative molar concentration of Cetomacrogol.

ED OSBORNE

ANTIBIOTIC POTENCY IN EMULSION BASES

The Effect of Rancid Oils on Antibiotic Containing Emulsions: Kudalkar, P., Hall, N, and Rising, W, Am. J. Pharm., 131:166 (May) 1959. (Dept. of Chemical Technology, University of Bombay, Bombay 19, India)

Studies on the release of anti-infective substances from emulsion bases have shown that the nature of the emulsion components may effect changes in the release of medication to such a degree that this factor must be considered in formulation studies. The authors described a study designed to show the gross effect of this change upon the activity of antibiotic containing emulsions prepared from oils at varying stages of rancidity induced under controlled conditions.

Peanut oil, corn oil, olive oil, coconut oil, castor oil, linseed oil, cod liver oil, and liquid petrolatum were subjected to controlled autoxidation at 97.5° for varying periods of time to produce different degrees of rancidity. The resulting oils were incorporated into simple emulsions containing potassium penicillin G, bacitracin, and neomycin sulfate and tested immediately for activity by the agar cup plate method. The activity of penicillin was enhanced and the activity of bacitracin was inhibited by rancid oils. Neomycin activity was destroyed completely by the highly rancid oils. Investigation of the destructive influence indicated that the acids formed on rancidification were involved.

The effect of oils on antibiotic activity appeared to parallel the increase in acid value. No effect on activity was noted with oils of slight or moderate rancidity and, in all instances where antibiotic activity was affected, the oils had a definite rancid odor.

THOMAS E. ARKINSON

ION EXCHANGE DETERMINATION FOR BARBITURATES

Analysis of Barbiturate Salts in Various Dosage Forms by an Ion Exchange and Nonaqueous Titration Procedure, Vincent, M. and Blake, M., J. Am. Pharm. Assoc., Sci Ed. 48:359 (June) 1959. (School of Pharmacy, North Dakota Agricultural College, Fargo, N. Dak.)

This report describes a procedure for the analysis of barbiturate salts, pure and in various dosage forms, by the extraction and conversion of the salt to the acid form by ion exchange and followed by nonaqueous titration. The method is rapid, accurate, less tedious than the official method, and avoids less tedious extraction procedures.

A solution of the salt in dimethylformamide is passed through a cationic exchange resin column (Amberlite IRC-50). The effluent is titrated visually with 0.1N sodium methoxide in benzene-methanol, using azo violet as the indicator.

NORMAN HO

PENICILLIN, STABILITY IN AQUEOUS SOLUTIONS

Effect of pH of the Medium on the Stability of Penicillin in Aqueous Solutions, Pinyazhko, I.R.M., Antibiotiki 3:114 (1958).

The stability and the decomposition rate of postassium penicillin were studied in aqueous solution as a function pH at 37°C. Potassium penicillin is more stable at pH 7 (t ½ for decomposition=29 hours). An increase or decrease of pH decreases the t ½. The rates of decomposition of potassium penicillin follow the first-order equation.

V. S. MIHAJLOV, CHEMICAL ABSTRACTS 53,2538a

RESCINNAMINE STABILITY

The Stability of Rescinnamine in Solution, Analytical Methods Committee, Society for Analytical Chemistry, J. Pharm. and Pharmacol. 11:211 (Apr.) 1959. (Joint Committee of the Pharmaceutical Society of Great Britain and the Society for Analytical Chemistry on Methods of Assay of Crude Drugs, 14 Belgrave Square, London, S W. 1)

The ultra-violet absorption characteristics of solutions of rescinnamine in various solvents change when the solutions are exposed to daylight. The change, which is thought to be due to a cis-trans isomerism, is not accompanied by any detectable alteration in pharmacological properties.

AUTHOR'S SUMMARY

DRUG ASSAY, METHOD OF

Ion Exchange and Spectrophotometry in the Analysis of Organic Pharmaceuticals, Haberli, Von E. and Beguin E., Pharm. Acta Helv. 34:65 (Feb.) 1959.

A method for the quantitative determination of drugs by means of ion exchange and spectrophotometry is described. The method is based on the adsorption of acid and basic substances on ion exchange resins followed by the elimination of interfering products by washing or "back-wash" procedures and elution of the pure drugs. The latter are assayed in the eluates exclusively by spectrophotometry. It is to be stressed that only one cation and one anion exchange resin (Dowex 50-X-2 and 1-X-1 respectively) together with only a few eluants are employed. Thus, the method is simple and well suited for routine analyses. The procedure is rapid and accurate and lends itself easily to the determination of alkaloids in certain plants and galenical preparations as well as to the assay of more complex mixtures which may contain simultaneously up to two acid, basic and neutral substances.

AUTHOR'S SUMMARY

ALGINATES, FACTORS AFFECTING VISCOSITY OF

The Behavior of Sodium Alginate and its Solutions on Storage, Bolliger, Von Rosmarie and Munzel, K., Pharm. Acta Helv. 34:79 (Feb.) 1959.

In the introduction a general explanation of the expression "stability of medicinal forms" is given. In medicinal forms containing alginate mucilages the viscosity is an important factor for their stability. The changes of viscosity during storage under various conditions are discussed.

If alginates in their powdered form are not kept in a dry place, small but noticeable depolymerization may occur in the course of years. Storage in a cool and dry place, protected from light, is therefore recommended.

The viscosity of the preserved aqueous solutions of all alginates examined decreases upon aging. This phenomenon is a common property of hydrophilic macromolecular substances.

Unpreserved alginate mucilages suffer greater decreases of viscosity than preserved ones, probably as a result of enzymatic decomposition of the alginate chains by microorganisms. The viscosity of preserved mucilages, on the contrary, decreases in the usual manner due to chemical processes.

The following preservatives proved satisfactory for 2.5% alginate mucilage with a pH of 6 to 6.8: methyl or propyl p-hydroxybenzoate 0.1%, phenylmercuric nitrate 1:50,000, Thimerosal N.F.X. 1:50,000, sodium benzoate 1.5%. Quaternary ammonium compounds, as *e.g.* Bradosol®, and other cation-active preservatives which will react with the anion-active alginate molecule forming an insoluble compound are not suitable.

The stability of the viscosity of alginate solutions is dependent on the temperature. The higher the test-temperature, the more considerable and faster the decrease in viscosity of alginate mucilages: temperatures above 70° are particularly detrimental; temperatures between 40° and 70° have to be avoided for longer periods (*e.g.* during manufacture). At room temperature (20-25°) a moderate decrease takes place, while storage at plus 4° causes but insignificant decreases of viscosity.

Alginates were obtained by means of freeze drying from mucilages which, during storage at elevated temperatures, had suffered a considerable loss in viscosity. The determination of their mean molecular weights showed that these had decreased due to the influence of heat upon the mucilages and that the decrease in viscosity therefore has to be ascribed to a depolymerization of the alginate molecules.

Protection from light delays the decrease of viscosity in alginate mucilages.

The viscosity of alginate mucilages is most stable at pH 7. The most unfavorable pH is 5 or lower, whereas mucilages with a pH of 8 to 10 show smaller decreases of viscosity.

The addition of buffer solutions leads to different behaviour of alginate mucilages. According to pH and nature of the buffer solution varying initial viscosity values are obtained, *i.e.* the swelling of the alginate proceeds differently. The highest initial values result from buffer solutions of pH range 5 to 8; the decrease of viscosity of such solutions is mediocre. A pH of 4 on the one hand and of 9 and 10 on the other hand are to be considered as unfavorable extremes. Mucilages with a buffer solution of pH 4 show a relatively high initial viscosity which, however, decreases considerably on storage. Buffer solutions of pH 9 and 10 result in very low initial values, yet they remain practically stable on storage.

The addition of monohydric and polyhydric alcohols in certain concentrations to the alginate mucilages causes higher initial viscosity values than water alone (formation of "polyol bridges"). The viscosity of such mucilages is more stable than the viscosity of purely aqueous alginate mucilages.

Electrolytes such as sodium chloride and sodium benzoate stabilize the viscosity of alginate mucilages. The stability of the quasi-viscosity increases with larger amounts of electrolyte added (up to 0.2 molar additions of the electrolyte have been tried).

AUTHOR'S SUMMARY

CURRENT LITERATURE

. . . also calling your attention to the following articles appearing in recent hospital and pharmaceutical journals

. . . . . .

ADMINISTRATION

Joel, Leo: Composite Method for Estimating Drug and Personnel Needs, *Hospitals, J.A.H.A.* 33:56 (Aug. 1) 1959.

EDUCATION AND TRAINING

—Institutes

Anon.: 11th Annual Pharmacy Institute (C.H.A.), *Hosp. Progress* 40:88 (July) 1959.

INTERNATIONAL

Avchin, Marij: Hospital and Health Care in Yugoslavia, *Am. Profess. Pharmacist* 25:566 (Aug.) 1959.

LAWS AND REGULATIONS

Foulkrod, S. Walter, Jr.: Hospital Pharmacy Tort Liability, *Hosp. Progress* 40:106 (Aug.) 1959.

NARCOTICS

DeBaggio, Carl: Administrative Responsibility for Narcotics Control in Hospitals, *Hosp. Progress* 40:134 (July) 1959.

OUTPATIENT PRESCRIPTIONS

Vance, Joe: Outpatient Departments vs. Retail Drug Stores, *South. Hosp.* 27:84 (Aug.) 1959.

RADIOISOTOPES

Sperandio, Glen J.: Hospital Pharmacy Notes: Nuclear Medicine and Pharmacy, *Tile and Till* 45:opp.66 (July-Aug.) 1959.

RECRUITMENT

Franzoni, F. Royce: Government Service as a Career for Pharmacists, *Tile and Till* 45:58 (July-Aug.) 1959.

Smith, Byron: That Hospital Breed, *Tile and Till* 45:63 (July-Aug.) 1959.

SMALL HOSPITALS

Mittica, Rocco: How the Pharmacy Works in Small Hospitals, *Modern Hosp.* 93:98 (Aug.) 1959.

GENERAL

Archambault, George F.: Pharmacy of Tomorrow, Part II, *South Hosp.* 27:50 (July) 1959. (Part I appears in June issue).

DRUG EVALUATIONS

by the Council on Drugs of the American Medical Association

► THE FOLLOWING MONOGRAPHS and supplemental statements on drugs have been authorized by the Council on Drugs of the American Medical Association for publication and inclusion in *New and Nonofficial Drugs*. They are based upon the evaluation of available scientific data and reports of investigations. In order to make the material even more valuable, dosage forms and preparations of individual drugs have been added to the monographs. These dosage forms and preparations were not taken from material published in the *Journal of the American Medical Association* by the Council on Drugs; rather, they were obtained from such manufacturers' brochures, news releases, etc., which were available to us at the time of publication. An attempt has been made to make the list of dosage forms as complete as possible. However, no guarantee can be made that the list of preparations is complete and it is suggested that hospital pharmacists consult manufacturers' releases for additional dosage forms and preparations.

The issues of the *Journal of the American Medical Association* from which each monograph has been taken is noted under each monograph. Monographs in this issue of the JOURNAL include some of those published in the *A.M.A. Journal* for June 27, July 18 and July 25. Additional monographs for June 27, July 4, and July 11 will appear in the October issue of THIS JOURNAL.

Notice

New and Nonofficial Drugs 1959 is now available from your local bookstore and from the publishers, J. B. Lippincott Company, Philadelphia, Pa. This 1959 edition contains monographs of drugs evaluated by the Council on Drugs of the American Medical Association and published in the Journal of the A.M.A. to January 1, 1959. The indexes listed below contain those drugs evaluated and published between December 20, 1958 and July 25, 1959*

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*Some of the drugs evaluated and Council Reports included in the June 27, July 4, and July 11 issues of the *A.M.A. Journal* will appear in the October issue of THIS JOURNAL.

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NEW AND NONOFFICIAL DRUGS

The following descriptions of drugs are based upon available evidence and do not in any case imply endorsement by the Council.

H. D. KAUTZ, M.D., *Secretary.*

Azuresin — Diagnex® Blue

AZURESIN (Diagnex Blue).—azure A carbacrylic resin is a complex of azure A and a polyacrylic carboxylic acid resin. Azure A is a blue dye which is chemically defined as 3-amino-7-dimethylamino-phenazathionium chloride.

Actions and Uses

Azuresin, introduced in 1958, is employed as an indicator for the detection of gastric anacidity (achlorhydria) without intubation. After oral administration of the drug, the blue dye (azure A) in the resin is displaced by the hydrogen ions of free hydrochloric acid that may be present in the stomach. A part of the displaced azure A is absorbed and excreted in the urine within two hours after administration of the resin. A stimulant to gastric secretion is given one hour before administration of the resin. Urine voided during that hour serves as a control sample. The dye content of the urine specimen collected two hours after administration of the resin is visually estimated as an indication of the presence or absence of free hydrochloric acid in the stomach. Because visual estimation of a blue dye in the urine is much less complicated than determination of urinary quinine by photoelectric fluorophotometry, azuresin has completely replaced the older quinine carbacrylic resin for tubeless gastric analysis.

Azure A in the urine is estimated by use of the color comparator which is supplied with each test unit of the drug. Two color standards representing color intensities of 0.3 and 0.6 mg. of azure A in 300 cc. of solution (0.1 and 0.2 mg.%), respectively, are also provided. After dilution of the control urine sample and test urine sample to 300 cc. each, two 10-cc. aliquots of the control urine are placed in the comparator in front of the two standards and one 10-cc. aliquot of the test urine between the two controls. Visual comparison is then made between the color intensity of the two standards and a 10-cc. aliquot of the test urine. If the color of the test urine is darker than that of the 0.6-mg. standard, the patient is presumed to have secreted free gastric hydrochloric acid, and the test is complete at that point. Since azure A may be excreted in the urine in its blue form or a conjugated colorless form or both, the test should not be interpreted as negative (achlorhydria) until any colorless form present has been oxidized to the blue form. Thus, if the color of the test urine is lighter than that of the 0.6-mg. standard, all samples are acidified with two drops of 10% hydrochloric acid to give a pH between 2 and 4, heated for 10 minutes in a boiling water bath, and allowed to cool for two hours. If a red color results from the addition of hydrochloric acid, too much has been added and second aliquots must be used with less hydrochloric acid. It is important to allow the full two hours for cooling prior to rereading color intensities, since this period of time is required for the full color to develop. After the cooling period, visual color comparison between the test urine and the two standards is done as described previously. If the color intensity of the test urine lies between that of the 0.6-mg. and that of the 0.3-mg. standard, this is interpreted as presumptive evidence for hypochlorhydria. An intensity less than that of the 0.3-mg. standard is presumptive evidence for achlorhydria. A high degree of correlation has been obtained in tests for achlorhydria in which the azure A resin method and the conventional gastric analysis by intubation were used. It should be understood, however, that, when caffeine is used as the stimulant to gastric secretion prior to the administration of the resin, the azure A method determines what might be called a caffeine achlorhydria. True achlorhydria can be determined only if the most powerful stimulants to gastric secretion, such as betazole or histamine, are used.

The azuresin test does not furnish exact quantitative results. However, it is convenient for screening patients with minor gastric symptoms that are not considered sufficiently significant to warrant the discomfort of intubation gastric analysis or other more expensive diagnostic procedures. It should not be used in lieu of more extensive examinations whenever these are indicated. When the test indicates achlorhydria, some clinicians advocate confirmation of these results by repeating the test, using histamine or betazole as the stimulant to gastric secretion. The resin test method for achlorhydria is considered useful for the diagnosis of suspected cancer of the stomach, pernicious anemia, and gastric polyps.

Azuresin is of negligible toxicity, and, to date, no instances of drug idiosyncrasy have been reported (as was sometimes the case with the older quinine resin). The test may be carried out without regard to previous or concomitant drug therapy. However, tubeless gastric analysis may be inaccurate in the presence of pyloric obstruction, severe hepatic or renal disease, abnormalities that impair intestinal absorption, urinary bladder obstruction, or in patients who have undergone total or subtotal gastrectomy.

Dosage

Azuresin is administered orally as a single test dose of approximately 2 Gm. in the form of granules. Patients should be instructed not to eat after midnight preceding the day of the test. On the morning of the test, the patient should empty the bladder and discard the urine. Breakfast is withheld until the test is completed. Two 250-mg. tablets of caffeine and sodium benzoate are swallowed with one glass of water. One hour later, the patient voids and saves this specimen in a jar marked "control urine." Then the 2-Gm. dose of the resin is stirred well and taken in one-fourth glass of water (without chewing the granules). If any granules remain in the glass, these are consumed with a little more water. Exactly two hours after the resin is taken, the urine should be voided and the entire amount saved in a jar marked "test urine." After the last specimen has been voided, the patient may eat breakfast. The two specimens should be delivered to the physician or to a clinical laboratory as soon as convenient. The patient may continue to pass blue or green urine for a few days.

When indicated or desired, a subcutaneous or intramuscular dose of 50 mg. of betazole hydrochloride for a person weighing 100 to 250 lb. (45.4 to 113.4 kg.) or 0.0275 mg. of histamine phosphate per kilogram of body weight may be substituted for the orally given caffeine and sodium benzoate as the stimulant to gastric secretion.

Preparations: granules 2 Gm. (with comparator, color standards, and two 250-mg. tablets of caffeine and sodium benzoate).

E. R. Squibb & Sons, Division of Olin Mathieson Chemical Corporation cooperated by furnishing scientific data to aid in the evaluation of azuresin.

J.A.M.A. 170:130/1550 (July 25) 1959.

Preparations

Granules Azuresin (Diagnex Blue) 2 Gm. (containing approximate 100 mg. azure A dye, 2 tablets caffeine sodium benzoate 0.25 Gm., and one comparator); packages of 5 and 50 tests.

Tuberculosis Vaccine

TUBERCULOSIS VACCINE (Tuberculosis Vaccine), BCG vaccine, Bacillus Calmette-Guérin vaccine is a freeze-dried preparation of the culture of an attenuated strain of bovine tubercle bacillus, Mycobacterium tuberculosis, originally isolated by Calmette and Guérin. It is standardized in accordance with requirements of the National Institutes of Health.

Actions and Uses

Tuberculosis vaccine, first licensed for general distribution in 1950, is proposed for use as an immunizing agent in the prevention of tuberculosis. Its use for this purpose is based on the ability of the vaccine to induce a positive tuberculin skin test reaction in a high percentage of individuals who are initially nonreactive to such a test. Conversion of negative tuberculin-tested subjects to positive reactors after vaccination is generally regarded as presumptive evidence of the development of immunity similar to that which follows a naturally resisted or healed primary sensitizing infection. Accordingly, tuberculosis vaccine is intended for, and should be used only in, individuals initially nonreactive to tuberculin.

Evaluation of the effectiveness of tuberculosis vaccine is hampered by the fact that skin reactivity to tuberculin does not measure the degree of immunity or amount of resistance to the disease. Moreover, there is no suitable quantitative method, such as a humoral test for antibodies, by which this can be estimated. Studies comparing the incidence of tuberculosis between vaccinated and nonvaccinated population groups indicate that the effectiveness of the vaccine in the prevention of the disease ranges from 50 to 80%, depending on the degree of exposure to active infection and other factors which influence susceptibility to the disease. Some authorities attribute variations in the results of vaccination to a lack of uniformity of the vaccine; others believe that a low degree of native resistance is associated with a correspondingly low response to vaccination. The duration of vaccine-converted tuberculin reaction varies according to age of the person. In newborn infants the reaction has remained positive for six to seven years (80%), whereas in medical students and nurses 70% were positive after two to three years. Most authorities agree that revaccination is advisable whenever tuberculin retesting shows that reversion to a negative reaction has occurred.

Indications for the use of tuberculosis vaccine are complicated by a lack of agreement concerning its importance in the over-all epidemiologic control of the disease. Some authorities believe that all tuberculin nonreactors, young and old, should be vaccinated and revaccinated as necessary, to induce and maintain a tuberculin-positive state. Other authorities take the position that the vaccine does not produce a high degree of protection and its employment is of minor significance as compared to control programs designed to improve the general level of health, including case-finding and isolation and early treatment of open cases of the disease. Still others oppose widespread use of the vaccine because the artificial conversion to tuberculin-positive of large numbers of unexposed nonreactors vitiates the use of the tuberculin skin test as a diagnostic screening tool for early detection and treatment of infection; however, the claim is made that a differentiation between virulent infection or disease and vaccination can be established in a high percentage of cases. There is a large body of expert opinion which favors vaccination only for (1) children and adults considered to have inferior resistance and who reside in areas where the incidence of tuberculosis is high, (2) professional and other individuals whose work (as in hospitals) involves a high risk of exposure, (3) members of households unavoidably exposed to infectious cases in the home, and (4) inmates and personnel of institutions in which tuberculosis is found to be prevalent. Thus, among individual nonreactors to tuberculin, physicians have a choice either of using the vaccine to reduce the risk of clinical disease or of not using the vaccine and having the tuberculin skin test for early diagnosis and as a guide to the need for further study and treatment.

Tuberculosis vaccine as presently standardized and distributed in the United States is considered to be relatively free from untoward effects. The freeze-dried preparation is regarded as relatively stable for a period of six months, if kept refrigerated at 4 to 6 C, protected at all times against light, and used within two hours after resuspension. Local infection at the site of inoculation and/or regional lymphadenopathy may occur occasionally. Such reactions are considered more apt to follow the intradermal injection technique than the multiple puncture or scarification methods of inoculation. The vaccine is contraindicated in persons who have not been tested and found tuberculin-negative within the preceding two weeks, who are acutely ill or suspected of having a respiratory infection, who have received antibiotic medication within the past month, or who have an active skin disease. Tuberculin testing also is contraindicated in the presence of any acute illness, scabies, allergic dermatitis, or psoriasis; it is also contraindicated if a smallpox vaccination has been given within the previous month. The latter is significant because of the danger of cross infection between the sites of two similar types of vaccination.

Dosage

Tuberculosis vaccine is usually administered by multiple puncture or by intradermal injection. Because the vaccine is composed of viable organisms and contains no preservative, it must be handled in a sterile manner. Ethyl alcohol 70% (undenatured) and/or acetone is used for cleansing of the site of the inoculation and the hands of the operator. Needles, syringes, or other equipment should be sterilized between each use by autoclaving, dry heat, or boiling water.

The dosage for adults and children is the same and is measured in drops of the resuspended vaccine (50 mg. per cubic centimeter) for the multiple puncture method of inoculation. The vaccine is placed directly on the cleansed skin at the inoculation site, usually over the left deltoid region. The required number of drops for each inoculation depends on the gauge of the needle or other opening from which the vaccine is deposited on the skin: 22 gauge, 4 drops; 17 gauge, 2 drops; syringe without needle, 1 drop. When single-dose capillary tubes are used, the resuspended contents of one tube are used for each inoculation. The multiple puncture method can be carried out by means of a specially constructed disk, which makes all punctures simultaneously, or with a needle used to make three rows of 10 separate punctures, 2 mm. apart. After inoculation by multiple puncture the site is allowed to dry without dressing and should not be washed for 24 hours. For intradermal injection, 0.1 cc. (equivalent to 0.2 mg.) of the resuspended and further diluted vaccine is injected as superficially as possible with a tuberculin syringe and a 26-gauge needle so as to produce a wheal of 8 to 10 mm.

In screening candidates for vaccination, the tuberculin test is usually read after an interval of 48 to 72 hours. A tuberculin test read after 48 hours should be performed eight weeks after vaccination and at six months to yearly intervals thereafter. Vaccinated persons found to be nonreactive should be revaccinated within two weeks of a negative tuberculin test. A single dose of 0.1 mg. (0.1 cc. of a 1:1,000 dilution) of old tuberculin is used for the first eight-weeks test after vaccination. Subsequent retesting should be done with two test doses as follows: first, 0.1 mg. (0.1 cc. of a 1:1,000 dilution), or 0.02 mg. (0.1 cc. of a 1:5,000 dilution), and if negative, then 1 mg. (0.1 cc. of a 1:100 dilution).

The tuberculin-positive skin reaction usually induced by vaccination is less pronounced than that found in the presence of active disease. Induration is less marked, and redness is less intense or absent. Accordingly, care must be taken in reading the test to palpate the actual site of in-

jection. The proper site for testing is the upper third of the volar aspect of the forearm, preferably in a small hollow, and never over a muscle belly, tendon, or vein, so as not to obscure the detection of a positive induration. A reaction is considered positive when the area of induration equals or exceeds 6 mm. in any diameter.

Preparations: powder (freeze-dried) 50 mg. for resuspension to 1 cc. (14 doses by multiple puncture disk and 250 doses by the intradermal route) and capillary (single dose) units.

The Institution for Tuberculosis Research of the University of Illinois, the Research Foundation of Chicago, the City of Chicago Municipal Tuberculosis Sanitorium, and the Cook County Hospital cooperated by furnishing scientific data to aid in the evaluation of tuberculosis vaccine.

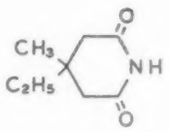
J.A.M.A. 170:122/1066 (June 27) 1959.

Preparations

Vials Tuberculosis Vaccine 50 mg.

Bemegride — Megimide®

BEMEGRIDE (Megimide) is 3-ethyl-3-methylglutarimide.—The structural formula of bemegride may be represented as follows:



Actions and Uses

Bemegride, introduced in 1954, should be regarded as a central nervous system stimulant, most appropriately categorized as an analeptic. Although the drug was introduced with the thought that it might prove to be a specific antagonist to barbiturates, it was found to antagonize the action of other depressants as well, and the conception that its action is in any way specific for barbiturates has been abandoned. Apart from its general effect on the central nervous system, no evidence is available to indicate that bemegride possesses any other pharmacodynamic properties when given in the dosage used clinically.

Clinical interest in bemegride centers chiefly upon its use in barbiturate intoxication, although it has also been employed after thiopental anesthesia to lessen the depth of anesthesia and hasten recovery. Several reports have described its use in glutethimide poisoning. Its action in the presence of central depression by other drugs has had only limited clinical investigation.

The use of bemegride in barbiturate poisoning may result in improved muscle tone, a return or increase in reflex activity, spontaneous movements, increase in respiratory rate and minute volume, elevation of the blood pressure, and lessening of the depth of coma. It apparently neither accelerates the elimination of barbiturates from the body nor induces awakening at higher barbiturate blood levels. Whether its use improves the prognosis for ultimate recovery is part of the highly controversial question of the value of any analeptic in barbiturate intoxication. Certainly, the use of bemegride or other analeptics is to be regarded as an adjunct to other therapeutic measures, especially maintenance of a patent airway, artificial respiration, and administration of oxygen. (See the general statement on central nervous system stimulants and the monograph on picrotoxin in New and Nonofficial Drugs.)

Response to bemegride is prompt. Effects of intravenous injection in unanesthetized animals are manifested almost immediately. On the other hand, in the presence of barbiturate-induced coma, a series of injections, given according to the schedule outlined later, may be necessary before optimal stimulation is produced. Furthermore, once optimal stimulation from bemegride has been achieved, complete recovery of the patient may not ensue for an additional eight hours or more. Since the effects of bemegride are frequently transitory, the patient should be watched carefully for signs of regression. Should this occur, a further series of bemegride injections may be given if desired.

The effects of overdosage of bemegride closely resemble those of other analeptics. In unanesthetized mice, toxic doses produce jerks, spasms, hyperpnea, the Straub tail phenomenon, followed by clonic and tonic convulsions and death. In human patients depressed by barbiturates, bemegride may produce hyperactivity of reflexes, muscular twitching, and convulsions. Retching and vomiting are said to be the earliest signs of incipient toxicity. A delayed psychotic reaction characterized by lability of mood, euphoria, confusion, and visual hallucinations, is reported to have occurred in patients reawakening from barbiturate intoxication after treatment with bemegride. Since, however, similar symptoms have also appeared in patients treated with other analeptic agents and in those to whom no analeptic agents were administered, there is little reason to regard the syndrome as a specific consequence of bemegride therapy. No reports of serious chronic toxicity have appeared.

A final assessment of the relative merits of bemegride in comparison with other analeptics must await further clinical study. At present, it may only be suggested that, although bemegride is a useful addition to the list of analeptics available, this agent has not yet been established as clearly superior to certain older drugs of the group.

Dosage

Bemegride is administered intravenously. In acute barbiturate poisoning, a fixed dose cannot be stated, since the amount required will depend on the degree of depression as well as on other factors, necessitating careful evaluation of the individual patient. With the patient under continuous observation, doses of 50 mg. may be injected at intervals of three to five minutes until there are clinical signs of improvement or until signs of toxicity intervene.

When used to decrease the depth of barbiturate-induced surgical anesthesia, 50-mg. doses of bemegride are injected on a similar schedule; here a single such dose may be sufficient, although as many as two to four injections may be required.

During bemegride therapy, it is advisable to have at hand a solution of a short-acting barbiturate for intravenous injection for possible use should dangerous manifestations of overdosage appear.

Preparations: solution (injection) 50 mg. in 10 cc.

Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of bemegride.

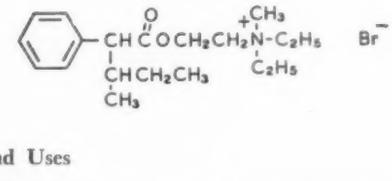
J.A.M.A. 170:136/1316 (July 11) 1959.

Preparations

Injection Bemegride (Megimide) 5 mg. per ml.; 10 ml. vials.

Valethamate Bromide — Murel® Bromide

VALETHAMATE BROMIDE (Murel) is 2-diethlaminoethyl 3-methyl-2-phenylvalerate methylbromide. The structural formula of valethamate bromide may be represented as follows:



Actions and Uses

Valethamate bromide, introduced in 1958, is a quaternary ammonium compound which is used clinically as an anti-

spasmodic. Animal experiments indicate that the drug acts predominantly as an anticholinergic agent. In addition, it exerts a mild direct inhibiting effect on the motility of smooth muscle. Valethamate is also said to exhibit a transient ganglionic blocking action; such effects are minimal, if not imperceptible, in the dose used clinically. The drug does not diminish gastric secretion to any appreciable extent.

Valethamate bromide is proposed for oral and parenteral use for the treatment of hypermotility and spasm of the gastrointestinal, genitourinary, and biliary tracts as well as for the adjunctive management of peptic ulcer. Although favorable results have been reported in some patients, the bulk of the clinical evidence available to date is uncontrolled and is based on subjective rather than objective observations. Further studies under controlled conditions are indicated before the efficacy of valethamate can be fully assessed.

In the usual doses employed clinically, typical anticholinergic side-effects have not been frequent. At higher doses, such effects as dryness of the mouth, blurring of vision, circulatory disturbances and interference with micturition or defecation have occurred. On the basis of its anticholinergic classification, valethamate should be used cautiously in the presence of glaucoma, organic pyloric stenosis, prostatic hypertrophy, or urinary retention.

Dosage

Valethamate bromide is administered orally, intramuscularly, or intravenously. Dosage so far employed has been variable. For mild to moderate spasm of the gastrointestinal, genitourinary, or biliary tracts and for peptic ulcer, the proposed oral dose ranges from 10 to 20 mg. three or four times daily. For acute spasm and for severe symptoms of peptic ulcer, the drug is proposed for intramuscular or intravenous injection in doses ranging from 10 to 20 mg. every four to six hours. Pending more conclusive evidence to show a beneficial effect, the foregoing dosages are considered experimental.

Preparations: solution (injection) 50 mg. in 5 cc.; tablets 10 mg.

Ayerst Laboratories, Division of American Home Products Corporation, cooperated by furnishing scientific data to aid in the evaluation of valethamate bromide.

J.A.M.A. 170:136/1316 (July 11) 1959.

Preparations

Injection Valethamate (Murel) Bromide 10 mg. per ml.; 5 ml. vials.

Tablets Valethamate (Murel) Bromide 10 mg.

REPORT TO THE COUNCIL

The Council has authorized publication of the following paper, which was presented by Dr. Warren H. Cole as part of a symposium-panel discussion held in Washington, D. C., Sept. 25, 1958, on The Use and Abuse of Adrenal Steroids. This is the fifth paper in the series, the first four of which appeared in THE JOURNAL *on June 20 and 27 and July 4 and 11, 1959, pp. 952, 1063, 1179 and 1311.*

H. D. KAUTZ, M.D., *Secretary.*

STEROID THERAPY IN SURGICAL PATIENTS

JOHN H. SCHNEEWIND, M.D. AND WARREN H. COLE, M.D., *Chicago*

The increased use of steroids in the treatment of general medical problems has been paralleled to a moderate extent by the increased use of these drugs for surgical patients in the preoperative and postoperative periods, as well as during operative procedures. In our experience, there are three situations in which steroid therapy is indicated. The first is in acute severe injury or illness in which acute adrenal insufficiency is suspected because of a significant fall in blood pressure not explained by blood loss or coronary disease. In many instances it is difficult to be sure that these patients have a true adrenal insufficiency, and, if they recover, it is not always clear whether steroid therapy was responsible. Admittedly, this is not a very common situation. The second category of patients in whom steroid therapy is indicated are those who have been receiving steroid medication for arthritis or colitis for weeks or months. It is necessary to assume that the patient may have some degree of adrenal suppression and that cortisone (Cortisone, Cortogen, Cortone) acetate and hydrocortisone (Cortef, Cortril, Hycortole, Hydrocortone) will be needed in the immediate operative period to prevent an acute adrenal insufficiency. A third type of patient in whom steroids may be useful is the chronically ill, malnourished person who has no desire for food. Some of these patients regain their appetite, eat well, and have a general feeling of well-being after administration of corticotropin (ACTH, Acthar, Corticotropin, Cortrophin). Frequently, a significant weight gain, with positive nitrogen balance, seems to improve their ability to withstand the stress of operation.

From the Department of Surgery, Research and Educational Hospitals, University of Illinois.

Adrenal Insufficiency Due to Acute Illness or Injury

Significant hypotension which cannot be explained by acute blood loss, myocardial infarction, anesthesia, drugs, or electrolyte imbalance should suggest the possibility of an acute adrenal insufficiency. This is especially true if the blood pressure does not respond promptly to blood transfusions or vasopressors.

Adams and Siderius[1] have reported on five patients with postoperative shock in whom they felt the diagnosis of adrenal insufficiency was justified. One patient had persistent hypotension and tachycardia after removal of a hydronephrotic kidney. In the immediate postoperative period the hypotension became severe, despite adequate blood, fluid, and electrolyte therapy. Levarterenol (Levophed) bitartrate was given continuously but was ineffective. On the third postoperative day hydrocortisone sodium succinate (Solu-Cortef) was given intravenously, and the blood pressure rose sharply and gradually stabilized. The patient received a total of 250 mg. on the third day and 200 mg. on the fourth day. No levarterenol was required. The patient recovered and was discharged on the 14th postoperative day. Adams and Siderius suggest that an increase in capillary resistance and potentiation of the effect of vasoconstrictors on blood vessels may be factors in the blood pressure response to adrenal corticosteroids. However, they warn that epileptic seizures or psychotic reactions may be precipitated by administration of steroids.

Howland and associates[2] reviewed the statistics covering a one-year period at the Memorial Center for Cancer and Allied Diseases and reported that 25 cases, or approximately 1 out of every 300 patients subjected to operation, exhibited

some form of adrenal cortical insufficiency. They reported in detail on seven cases. One patient with a bronzed skin was thought to have had a previously unrecognized adrenal cortical hypofunction; one patient had been taking cortisone for several months prior to operation, and one patient had had bilateral adrenalectomy and oophorectomy for metastatic breast cancer. The other patients had no obvious reason for adrenal insufficiency. All of the patients exhibited persistent hypotension and failed to respond to adequate blood replacement and vasoconstrictors. Respiratory depression and prolonged reaction time after anesthesia also occurred. All seven of the patients reacted favorably and rapidly after intravenous administration of soluble hydrocortisone. Howland and colleagues[2] believe that the basic physiological disturbance was a deficiency of adrenal cortical secretion.

Hayes[3] has studied the endocrine response to stress of normal patients and of patients with limited adrenocortical reserve. Most of the patients were subjected preoperatively to either the epinephrine-eosinophil response or the corticotropin-eosinophil (Thorn) test. Ordinarily, increased adrenal cortical output is reflected in a decrease in the numbers of eosinophils and lymphocytes in the blood. Hayes believes that an elevated eosinophil count during stress is direct evidence of an insufficient supply of adrenocortical hormone. If the patient is in shock that is unresponsive to adequate blood replacement and if the eosinophil count is not at the anticipated low level, a condition of temporary adrenocortical insufficiency is present and should be treated with steroids administered intravenously.

An example of our experience with this type of problem may be illustrated by the case of a 47-year-old woman who was admitted to the hospital because of cramping abdominal pain, distention, and vomiting for four days (fig. 1). She was obviously acutely ill, with a distended abdomen and only occasional bowel sounds. Her blood pressure was unobtainable. Although the patient's sensorium was depressed, she was able to answer questions and give a coherent history. Soon after admission a Levin tube was passed, and immediately a great deal of gastric content was returned. Fluids containing levarterenol were given intravenously, but it was not until four hours after admission that a blood pressure reading was obtained. Eight hours after admission the patient was taken to the operating room. Celiotomy confirmed the diagnosis of obstruction of the small intestine, which was secondary to adhesions in the pelvis due to previous operations. The patient tolerated the operation fairly well, but soon after reaching the recovery room the blood pressure was again unobtainable. Despite the fact that levarterenol was given continually after the operation, the blood pressure continued to be unobtainable. At midnight, four hours after operation, 100 mg. of hydrocortisone sodium succinate was administered intravenously, and another 100 mg. was given about two hours later. At the same time, the quantity of levarterenol administered was increased. At 2 a.m. the blood pressure was still unobtainable. At 5 a. m. approximately five hours after administration of the first dose of hydrocortisone sodium succinate, the blood pressure was 150/80 mm. Hg, and, although it fluctuated a good deal, it remained at satisfactory levels. An additional 87.5 mg. of hydrocortisone sodium succinate was administered on the first postoperative day, making a total of 287.5 mg. of that drug. The patient received a total of 82 mg. of levarterenol during this period. On the second postoperative day, 100 mg. of hydrocortisone sodium succinate was given, and it was possible to maintain the blood pressure with about half of the amount of levarterenol previously required. On the third postoperative day, the patient received 125 mg. of hydrocortisone sodium succinate and 10 mg. of levarterenol. On the fourth and fifth postoperative days, the patient received 80 and 45 mg. of hydrocortisone sodium succinate, respectively, but no levarterenol was required (fig. 1).

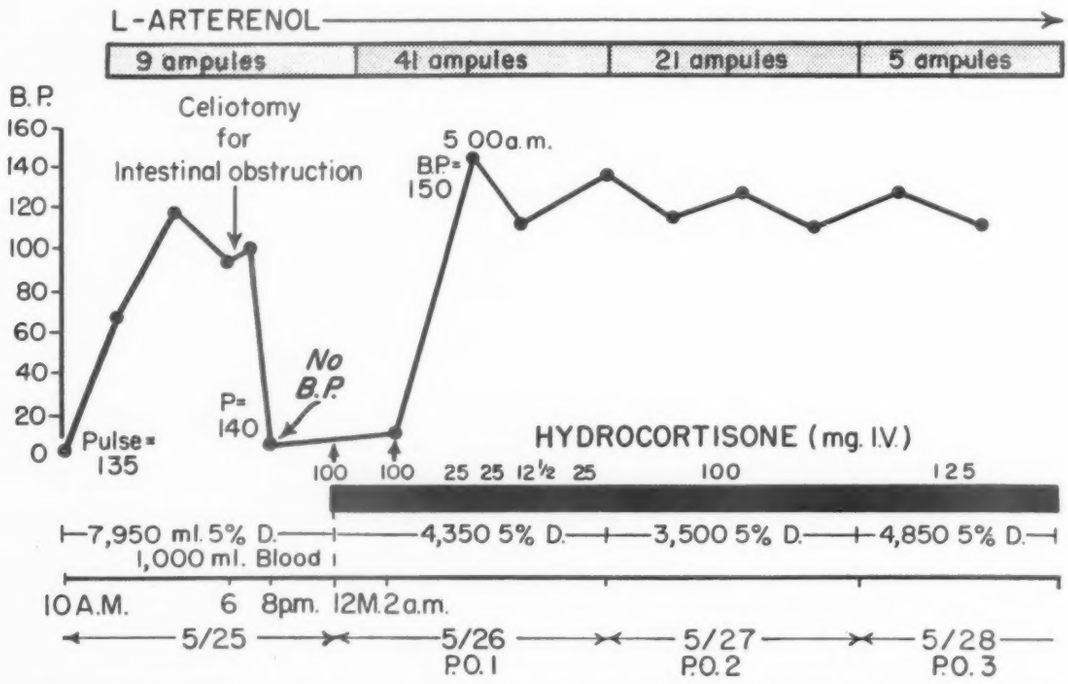


Fig. 1.—Patient with prolonged severe hypotension treated with levarterenol bitartrate and hydrocortisone sodium succinate.

The patient's postoperative course was uncomplicated, except for a severe slough of the skin on the lower half of the right leg at the site of administration of the levarterenol. This area was treated in routine fashion and eventually was covered with split skin grafts.

Another example of temporary adrenocortical insufficiency is that of a 51-year-old man who was admitted to the

hospital five hours after an automobile accident in which he had been struck in the abdomen by the steering wheel (fig. 2). On admission to the emergency service, no pulse or blood pressure was obtainable. After administration of two liters of dextran (Dextran, Expandex, Gentran) and 2,500 cc. of whole blood, the blood pressure was 90/60 mm. Hg and the pulse rate 160 per minute. The patient was taken to the operating room, and a celiotomy revealed a ruptured middle colic artery which was spurting vigorously. There was a great deal of blood in the peritoneal cavity, marked cyanosis of the transverse colon, and extravasated blood in the mesocolon. The patient received an additional 2,500 cc. of whole blood during the operation. His pulse rate gradually subsided to about 100; however, the blood pressure remained at 90 mm. Hg. The middle colic artery was ligated, and a transverse colostomy was performed.

Although the patient tolerated the procedure moderately well, his blood pressure remained low, his skin was cool, and his peripheral pulse was of poor quality. Four hours after the end of the operation, 100 mg. of hydrocortisone sodium succinate was added to the intravenous fluids (fig. 2). During the next two hours the patient's systolic pressure rose, and the pulse slowed to 80 per minute. The patient received a total of 300 mg. of soluble hydrocortisone intravenously during the remainder of the first postoperative day.

The patient developed a spiking fever due to pneumonitis three days after operation. The fever gradually subsided, however, and the patient's postoperative course otherwise was fairly good. He was readmitted to the hospital a month later for closure of his colostomy, which was tolerated without incident. This patient's steroid output during the immediate postoperative period was studied, and a graphic representation of our findings is shown in figure 3. The initial determination of plasma corticosteroids was made on blood drawn during operation. The elevated total plasma corticosteroid level of 106 mcg. per 100 cc. is probably related to oliguria due to the long period of hypotension. The free plasma corticosteroids, on the other hand, were at normal levels throughout the immediate postoperative period. The subsequent values for the total plasma and urinary corticosteroids reflected the intravenous administration of hydrocortisone sodium succinate. On the seventh postoperative day, a 5-unit test dose of corticotropin was administered, and one hour later the patient's free plasma corticosteroids had risen from 20 to 38 mcg. per 100 cc. This is consistent perhaps with an active adrenal reserve and ability to respond to stressful stimuli.

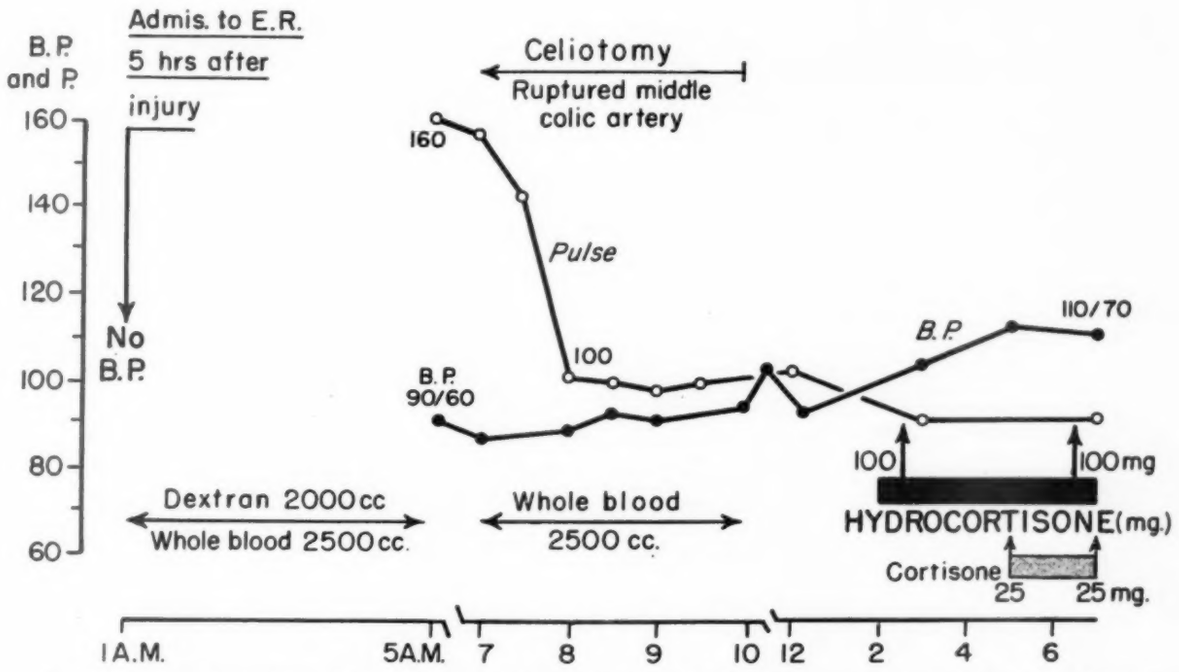


Fig. 2.—Recovery record in patient after massive hemorrhage due to blunt trauma. Hydrocortisone given intravenously seemed of benefit in stabilizing blood pressure and improving pulse.

Preparation of Patients on Prolonged Steroid Therapy for Operation

It is well known that prolonged steroid therapy will produce adrenal atrophy and that patients with adrenal cortical insufficiency tolerate the stress of operation when given adequate doses of steroids. The administration of corticosteroids should be continued during the operative period and during the immediate postoperative period. Schwartz and associates[4] studied the records of 19 patients with adrenal cortical insufficiency subjected to operation. Three deaths occurred in this series, and none of these three patients had received specific hormone therapy prior to or during operation. Hypotension occurred in 14 patients during anesthesia or in the postoperative period, and it occurred with the same frequency regardless of the anesthetic agent used. They feel that agents which may produce significant hypotension are inadvisable and warn of the necessity for an alert watch for hemorrhage and excessive trauma during operation.

In a review of the problem of administration of anesthetics to patients who have been receiving steroids, Lundy[5] was one of the first to emphasize that, since prolonged administration of cortisone may result in atrophy of the adrenal cortex, patients who have been receiving this medicament must be properly prepared for operation. He feels that the anesthesiologist should be able to recognize the atypical picture of shock which may occur during anesthesia and operation and should be prepared to treat this with appropriate steroid therapy.

In a comprehensive review of the problems of postoperative adrenal insufficiency, Root[6] cites several reports concerning

adrenal insufficiency produced by administration of cortisone. One study showed a diminution of the average weight of 46 adrenal glands at autopsy in patients who had been given cortisone, as compared with a control series of patients

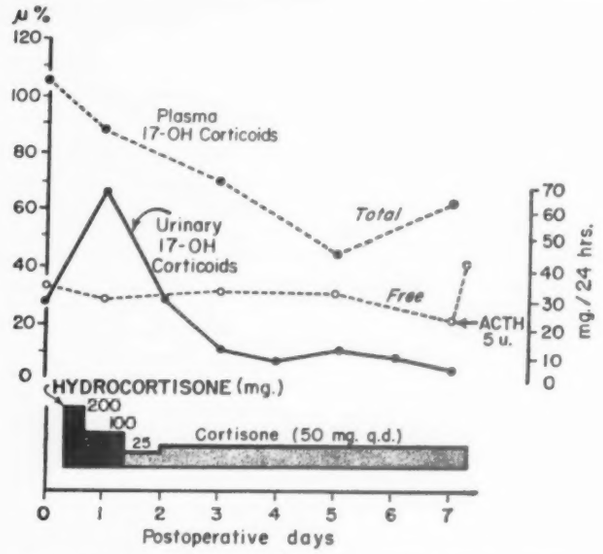


Fig. 3.—Steroid output of patient with massive hemorrhage due to blunt trauma.

who had not been receiving cortisone. The author also points out that circulatory collapse not related to blood loss and not responding well to transfusions and vasopressors may occur not only during or shortly after operation but up to one or two days later. He states that usually there is an unexpected degree of mental confusion which may be followed by disorientation and coma. Subnormal temperature and profuse sweating have also been noted.

Engleman and associates[7] attempted to determine the degree of cortical suppression after steroid therapy by studying 19 patients who had been receiving maintenance doses of cortisone for 12 to 26 months. These patients showed a response to stimulation on the third to sixth day of corticotropin therapy, whereas control patients responded on the first or second day. They conclude that, although adrenal function may be suppressed by long-term cortisone therapy, the suppression is usually reversible. It must be remembered, however, that a markedly increased demand, as in a patient undergoing operation, might not be covered by adequate adrenal function. In general, it is probably a safe rule that any patient who has received steroid therapy for five days or more during the year preceding operation should receive prophylactic treatment to prevent adrenal cortical insufficiency during an operative procedure.

The problem of management of a patient undergoing steroid therapy who experiences a sudden onset of upper gastrointestinal hemorrhage is presented by the case of a 43-year-old woman who entered the hospital because of hematemesis on the day prior to admission (fig. 4). This patient had suffered from rheumatoid arthritis for 19 years and had been receiving cortisone for approximately 2½ years prior to admission. The cortisone therapy had been changed recently to prednisone (Deltasone, Deltra, Meticorten, Paracort), 12.5 mg. daily. On the day before admission the patient had been doing her housework when suddenly she became dizzy and fainted. On regaining consciousness she found that she had vomited bright red blood. Roentgenographic studies revealed evidence of arthritic changes, most marked in the hands, and a large ulcer-crater deformity along the greater curvature of the midantrum. The patient was placed on an ulcer regimen, and the prednisone dose was reduced to 7.5 mg. Because of tachycardia, flushing of the face, extreme weakness, and thirst, the amount of prednisone was increased to the original dose of 12.5 mg. It was then gradually reduced by 1 mg. every two days and finally discontinued completely. The patient subsequently developed bilateral conjunctivitis which responded to an ophthalmic preparation of hydrocortisone. Although repeated upper gastrointestinal x-rays showed some healing of the ulcer, complete healing had not yet occurred approximately six months after the initial episode of hematemesis. At this time, it was felt that celiotomy was indicated.

The patient was prepared for operation and received 200 mg. of cortisone acetate intramuscularly the day prior to and again on the day of operation (fig. 4). The patient received 100 mg. of cortisone acetate daily on the first, second, and third postoperative days, 50 mg. on the fourth, and 25 mg. on the fifth postoperative day. The patient also received hydrocortisone sodium succinate intravenously on the day of operation and on the first, second, and third postoperative days. A gastric resection was performed, which the patient tolerated very well. Her postoperative course was uneventful and on discharge she was receiving aspirin for her arthritis but was not on any steroid medication.

Another example of a strong indication for steroid therapy during the immediate operative period occurred in a woman, aged 57, who had been receiving prednisolone (Delta Cortef, Hydeltra, Meticortelone, Paracortol) for the past year. She entered the hospital because of a mass in the left preauricular area which had been increasing in size during the month prior to admission. Approximately 18 months prior to this admission, the patient had had a laminectomy. At this operation a lymphoblastoma covering the dura from T-2 to T-6 was found. The patient had received radiation therapy and a course of nitrogen mustard postoperatively. During the year prior to admission, she had been receiving 15 mg. of prednisolone daily. Physical examination revealed a mass 4 by 4 cm. in the left preauricular area. There also was a 1-cm. mass just posterior to the angle of the mandible. Because of the history of removal of a lymphoblastoma from the spinal canal, it was felt that excisional biopsy of the small lymph gland was indicated. Since the patient was to receive a general anesthetic, her steroid management was planned as for any major operation. The details are shown in figure 5. The prednisolone therapy was continued until the day before operation and then discontinued. On this day the patient received 50 mg. of cortisone acetate intramuscularly in the morning and evening as well as 50 mg of cortisone acetate orally. On the day of operation the patient received 50 mg. of cortisone acetate intramuscularly before operation and every eight hours thereafter. Prior to induction of anesthesia, 100 mg. of hydrocortisone sodium succinate was added to a liter of 5% dextrose injection and administered intravenously. The patient received soluble hydrocortisone by slow drip throughout the operation and during the rest of the day until midnight, at which time she had received a total of 200 mg. On the first postoperative day the patient was given 50 mg. of cortisone acetate orally every six hours; this was decreased to 50 mg. orally every eight hours on the second postoperative day. The patient received 50 mg. of cortisone acetate every 12 hours on the third and fourth postoperative days and, finally, 25 mg. every 8 hours on the fifth postoperative day. On the sixth day the cortisone therapy was discontinued, and the patient was put back on prednisolone therapy, 5 mg. three times daily (fig. 5).

The patient tolerated the anesthetic and the excisional biopsy without incident and was discharged on the seventh postoperative day. The biopsy specimen revealed metastatic lymphoblastoma, and it was planned to treat her with additional radiotherapy.

Use of Corticotropin in Preoperative Preparation

Treatment of Disease Process.—There is a group of cases in which corticotropin or cortisone may be very effective in improving operability by reducing the serious effects of the disease itself. The two best examples of these diseases or

conditions are ulcerative colitis and thrombocytopenic purpura. It is well known that treatment with corticosteroids will cause marked improvement in most patients with these two diseases; it is equally well known that subsequent courses of therapy are decreasingly effective. Accordingly, when patients are acutely ill with either of these two diseases, many clinicians adopt the principle of reducing the manifestations with steroids and then resorting to operation, providing the patient has had ulcerative colitis for at least six months and has other evidence of intractability. Since the benefit of steroid therapy in ulcerative colitis is transient, many clinicians avoid the prolonged use of steroids because, if conservative therapy fails, the surgeon may be compelled to operate, with the patient in a very critical condition. This was the situation with the patient illustrated in figures 6 and 7; the acute manifestation of her disease responded quite well to steroids initially, but, as time passed, cortisone was not effective. Perforations of the colon necessitated an operation, but the patient was in an extremely hazardous condition. She survived the operation but died in the postoperative period. If a colectomy had been performed early, during the initial benefit from steroids, she might have been alive today.

Improvement of Appetite and Sense of Well-being.—In

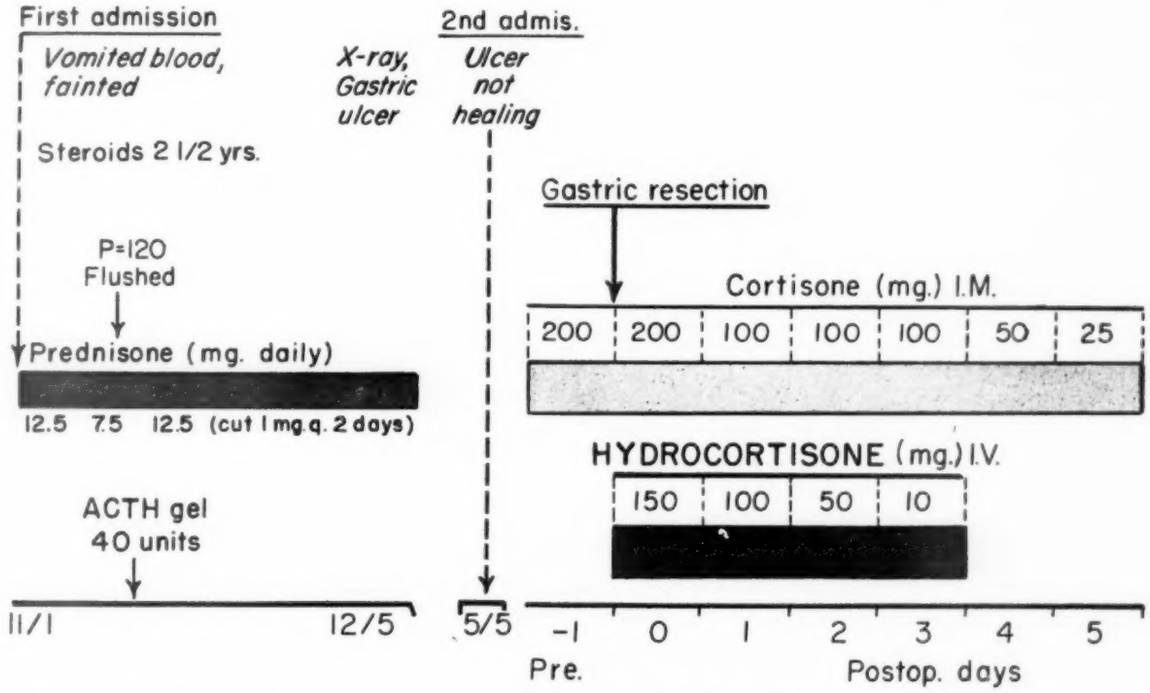


Fig. 4.—Steroid management of patient operated on for gastric ulcer. Administration of steroids was required because patient had been receiving them for arthritis for two and one-half years.

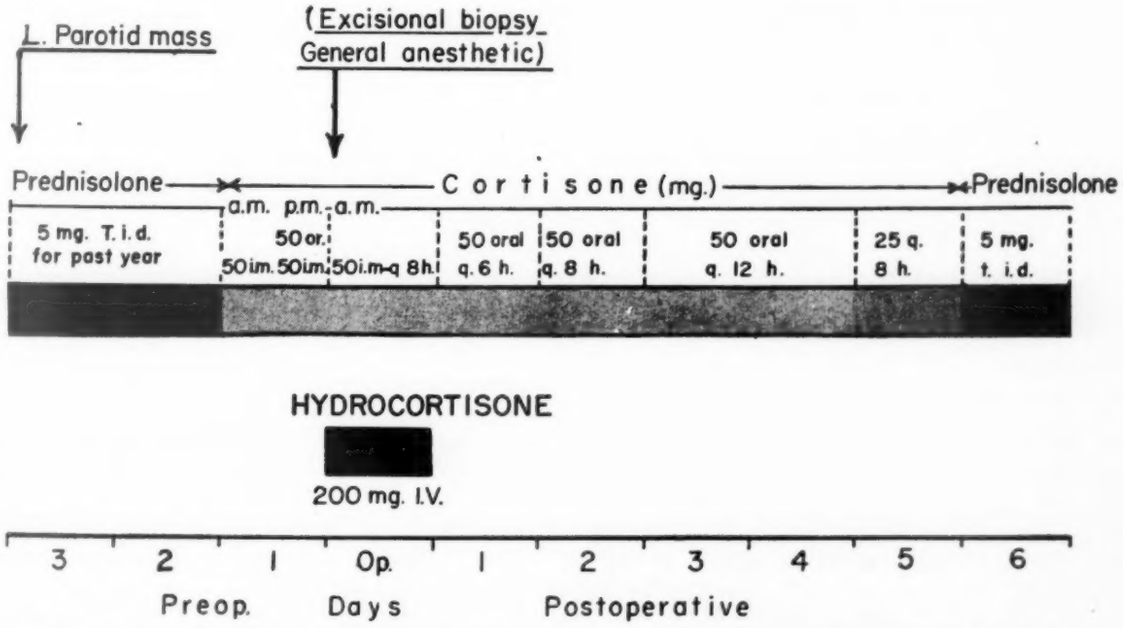

L. Parotid mass
(Excisional biopsy
General anesthetic)
Prednisolone
Cortisone (mg.)
Prednisolone
a.m. p.m. a.m.
5 mg. T. i. d. for past year
50 or. 50 im. 50 im. 50 i.m-q 8h.
50 oral q. 6 h.
50 oral q. 8 h.
50 oral q. 12 h.
25 q. 8 h.
5 mg. t. i. d.
HYDROCORTISONE
200 mg. I.V.
3 2 1 Op. 1 2 3 4 5 6
Preop. Days Postoperative

Fig. 5.—Steroid management of female patient during operative period. Patient had been receiving prednisolone for one year prior to admission.

selected patients, corticotropin may be of great value in improving appetite, increasing food intake, and producing a feeling of well-being.[8] It is true that some of the weight gain after corticotropin therapy is due to water retention, but the increased food intake often results in elevation of blood protein levels, positive nitrogen balance, and a general improvement of the mental status of the patient about to undergo an operation.

Galante and associates[9] regard corticotropin as an antipyretic and euphorigenic agent. They state that the drug may permit early ambulation, may effect an increase in appetite and sense of well-being, and may decrease the postoperative requirements of narcotics. The authors also discuss the value of corticotropin as an anti-inflammatory agent in such diseases as ulcerative colitis and regional enteritis. They point out that suppression of fever, toxicity, and malaise may result in considerable improvement of the patient prior to operation.

excessive gaseousness and eructation. The patient was fairly well after these attacks, except for a recurrent mild attack approximately two weeks prior to admission. She had lost 11 lb. (5 kg.) during the six months prior to admission. There was no history of jaundice, dark urine, or pale stools. Because of the chills and fever, both an intravenous urogram and a retrograde study were performed. It was the impression of the urologists that the kidneys were normal. A cholecystogram revealed calculi in the gallbladder.

Although the patient claimed she ate well, she failed to gain weight during the first week in the hospital. It was felt that she would benefit from an increased food intake, and corticotropin gel, 80 units daily, was given intramuscularly on the eighth day after admission to the hospital. The patient's weight increased from her admission weight of 115 lb. (52.2 kg.) to a peak of 122 lb. (55.4 kg.) during the six days of corticotropin administration (fig. 8). At this time a cholecystectomy was performed which was tolerated

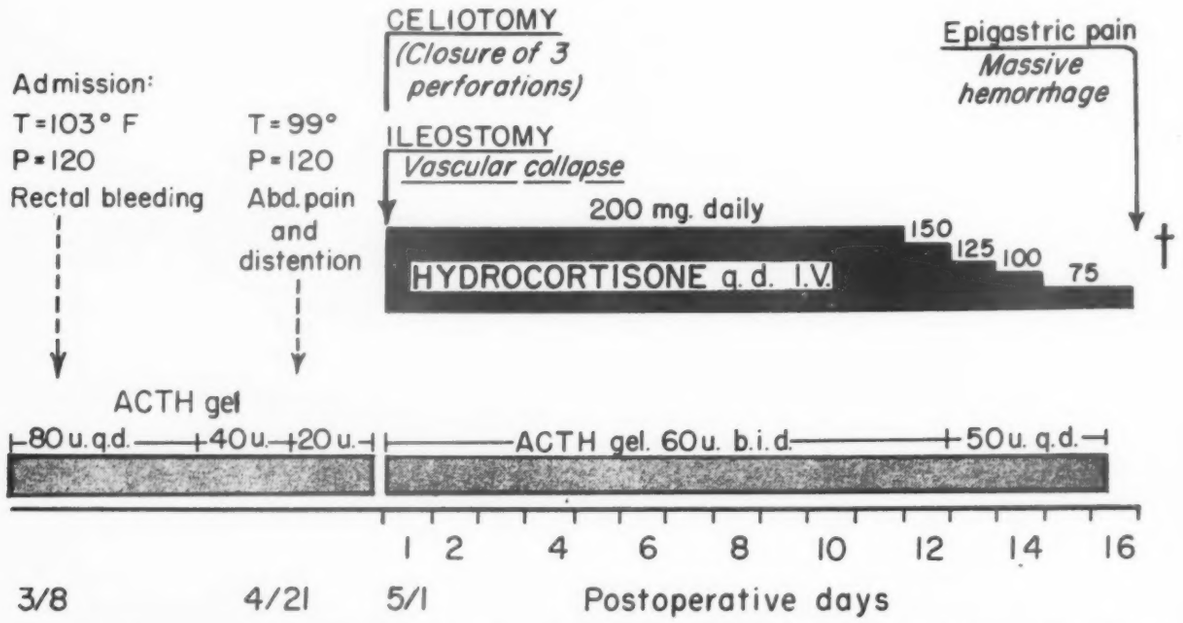


Fig. 6.—Management of patient with severe ulcerative colitis complicated by perforations. Acute vascular collapse during surgery necessitated intravenous administration of hydrocortisone. Drug continued during immediate postoperative period.

Corticotropin occasionally may be of value in patients with a smoldering rheumatic activity requiring valvuloplasties. The drugs also may be of value in certain allergic or hypersensitive states such as hemolytic anemia and thrombocytopenic purpura, with or without hypersplenism. In the immediate preoperative period, administration of corticotropin may result in a decrease of hemolysis and an increase in the platelet count. Corticotropin and the other steroids also have a place in the treatment of serum sickness and drug and transfusion reactions. In certain cases of nontropical sprue, the adrenal steroids may be effective in producing a remission characterized by improved appetite, increased dietary intake, weight gain, and a decrease in the number, fat content, and watery consistence of the stools.[10]

The following history illustrates the use of corticotropin for the purpose of improving appetite and increasing food intake. A 60-year-old woman entered the hospital because of intermittent attacks of pain in the upper part of the abdomen. Approximately four months prior to admission, the patient experienced two attacks of moderately severe pain in the right upper part of the abdomen accompanied by chills and fever. The pain extended to other parts of the abdomen and radiated to the back, and she occasionally suffered from

well. The patient's postoperative course was essentially uneventful. After the operation the body weight dropped to a low of 112 lb. (50.9 kg.) on the sixth postoperative day but then began to increase slowly until the patient was discharged. There was a marked increase in 17-hydroxycorticosteriod output by the adrenals after administration of corticotropin prior to operation (fig. 9). The total plasma corticosteroids rose to a peak of 147% and the free corticosteroids to 97%. The total urinary corticosteroids also increased to 82 mg. for 24 hours. These values were recorded after the first two days of steroid therapy.

Another example of the use of corticotropin in improving food intake prior to operation is that of a 64-year-old male who was admitted to the hospital with a history of scleral icterus two and one-half months prior to admission. The patient noted that his stools had become pale and his urine dark. He also complained of epigastric fullness, poor appetite, and easy fatigability. There was a 20-lb. (9-kg.) weight loss during this period. The noteworthy findings on physical examination were the obvious jaundice and a palpable liver and gallbladder. Laboratory studies were consistent with the findings of obstructive jaundice. The patient's alkaline phosphatase and bilirubin levels were elevated; the albumin-

globulin ratio was 4.1:2.6; and there was mild anemia.

During the patient's first 10 days in the hospital, he did not eat well because of anorexia and a feeling of fullness in his abdomen after taking small amounts of food and liquid. Because of the failure to gain weight, the patient was started on therapy with 40 units of corticotropin intramuscularly, twice daily. A four-day course of this therapy was given, and the patient's body weight increased from 137 to 143 lb. (62.2 to 65 kg.) (fig. 10). His daily caloric intake increased

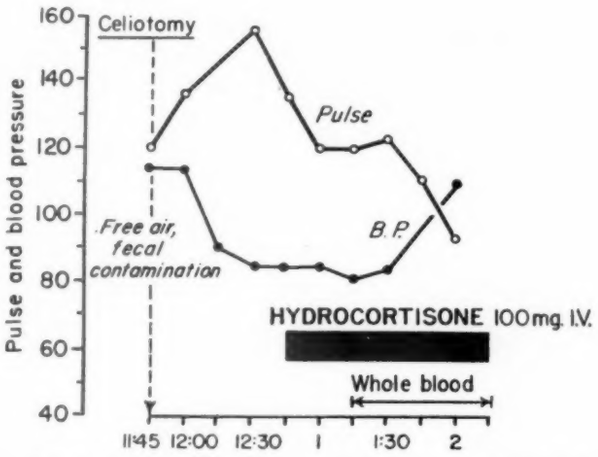


Fig. 7.—Pulse and blood pressure during operative period of patient with severe ulcerative colitis complicated by colon perforations. Hydrocortisone seemed to be of value in elevating blood pressure and reducing pulse rate.

by approximately 1,200 calories. At operation a large tumor mass consistent with carcinoma was found in the head of the pancreas. A cholecystojejunostomy was performed, with an entero-enterostomy below it. The patient's postoperative course was complicated by severe bronchial pneumonia, with high temperatures. On the eighth postoperative day the pneumonia subsided, and the patient appeared much improved. During this period the icterus had subsided appreciably. The patient's body weight declined during the postoperative period because of the pneumonia but began to increase again after the infection had subsided.

Contraindications and Complications of Steroid Therapy

There are certain contraindications to the routine use of steroid therapy for surgical patients. These include the presence of tuberculosis, malignant hypertension, uremia, psychoses, and the presence of active ulceration in the gastrointestinal tract. Other points which require consideration are the possibility of spread of localized infection, prevention of wound healing, fluid retention, and glycosuria and hypoglycemia due to the anti-insulin effects of corticotropin and cortisone. As a rule, these problems are not encountered during short-term administration of the steroids but become manifest when large doses are administered for periods exceeding seven days.[9]

In a review of the use of corticotropin and adrenal corticosteroids in diseases of the digestive system, Zetzel[10] states that ulcers rarely develop in patients receiving steroids. He feels that the possibility of the development or even the knowledge of preexisting peptic ulcer is not an absolute contraindication to an otherwise valid indication for steroids. With respect to perforation of the intestine and hemorrhage, he states that several large series of cases have been reported in which these complications were no more frequent than in control series of patients who were not receiving steroids. However, not all those persons working with steroids would agree with these statements.

The following complicated case history illustrates several of the problems which may arise in treating surgical patients with steroids. This case history includes intestinal perforation, vascular collapse on the operating table, steroid therapy during operation and in the immediate postoperative period, and, finally, massive hemorrhage, possibly due to steroids. Brief reference has already been made to this patient (fig. 6). She was a woman, aged 32, admitted to the hospital with a history of ulcerative colitis characterized by intermittent episodes of diarrhea, with mucus and blood, for a period of 10 years. Because of exacerbation of the bloody diarrhea, the patient was admitted to the medical service. At this time she was acutely ill, markedly malnourished, and was passing blood through the rectum. Sigmoidoscopy revealed polypoid changes in the rectum. An attempt was made to improve the patient's condition by giving her transfusions, antispasmodics, sedatives, and steroids in the form of corticotropin gel, but the patient continued to lose ground. Approximately one month after admission she experienced a sudden onset of abdominal pain, distention, and tachycardia, probably due to a perforation of the colon (fig. 6). Her condition was so critical it was felt that celiotomy could not be tolerated, and it was elected to treat her with gastrointestinal siphonage and antibiotics, in the hope that the perforated intestine would seal over. This apparently happened; however, 10 days later the patient again had signs and symptoms of a perforation of the colon. Plain films of the abdomen showed a large amount of air under the diaphragm, and it was felt that celiotomy must be undertaken.

At operation a large amount of fecal contamination and three large perforations of the colon were found. The perforations were closed, and an ileostomy was performed. During the operation the patient exhibited signs of an acute vascular collapse; however, the blood pressure improved after administration of blood and hydrocortisone sodium succinate (fig. 7). The patient continued to be in very

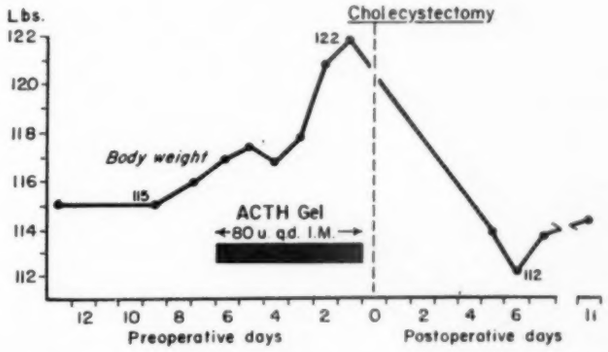


Fig. 8.—Body weight curve after administration of corticotropin in 60-year-old woman.

critical condition after the operation. She received hydrocortisone, corticotropin, a liter of protein hydrolysate, and 500 cc. of cottonseed oil (Lipomul I. V.) daily. Several units of human serum albumin and whole blood were given. She gradually improved until, on the seventh day after operation, she was able to take liquids by mouth. Two weeks after the operation the patient suddenly developed a skipping fever associated with a shaking chill, and soon afterward dark blood appeared from the ileostomy. A Levin tube was inserted, and approximately 200 cc. of dark blood was obtained from the stomach. At this time the patient complained of severe pain in the epigastric area. Shortly afterward the patient sustained a massive hemorrhage and died. Permission for a postmortem examination was refused.

As may be noted in figure 6, this patient received corticotropin gel as part of the treatment of the severe exacerbation of her disease, and this may have been a contributing factor leading to the colon perforation. The severe vascular collapse during operation was probably due to the combined effects of malnutrition, sepsis, and adrenal insufficiency, but it responded to blood and hydrocortisone given intravenously. The patient improved after operation until the sudden onset of a fatal gastrointestinal hemorrhage. It is entirely possible that the operative stress and steroids resulted in a peptic ulcer and the terminal hemorrhage.

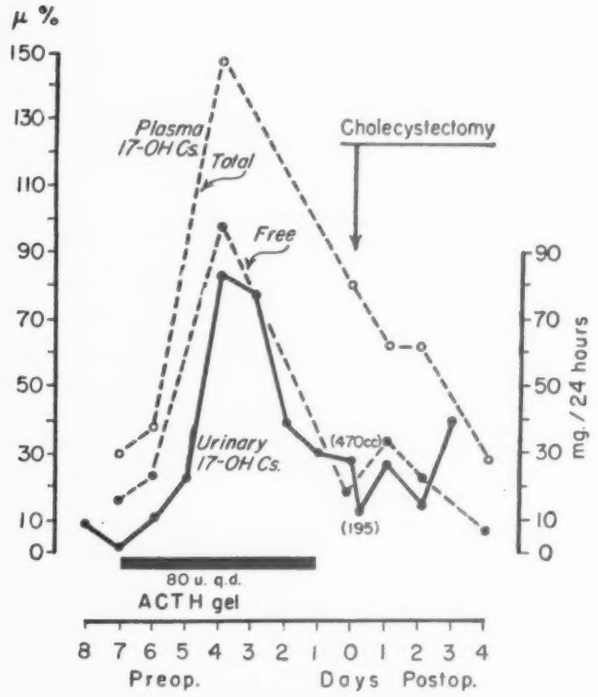


Fig. 9.—Effect of administration of corticotropin on plasma and urinary 17-hydroxycorticosteroids.

Comment

It seems clear that certain acutely ill or injured patients may exhibit signs of adrenocortical insufficiency during or after an operation. In the first example presented (fig. 1), a previously healthy patient with a severe intestinal obstruction remained in a shock-like state despite massive intravenous fluid therapy. It was not until hydrocortisone sodium succinate was administered that the blood pressure rose to normal levels and remained relatively stable.

The value of hydrocortisone in major surgery has been reviewed by Rukes and associates.[11] They found the drug useful in patients requiring bilateral adrenalectomy, in patients with adrenal insufficiency after major surgery, and in patients in shock unresponsive to standard therapy. A total of 50 patients of this type were treated, usually for no longer than five days. No complications of the treatment were noted.

Patients who have been on long-term steroid therapy and require operation certainly are more prone to adrenal insufficiency than is the average patient. Preparation for operation with steroids is not difficult and need not be extended for prolonged periods after operation. It is true that some of these patients might tolerate operation without steroids being given preoperatively; however, we believe it is much safer to prepare them all with steroids in order to prevent an unexpected adrenal insufficiency during or immediately after operation.

We have found corticotropin helpful in improving operability in selected patients by causing a marked improvement in appetite, increased food intake, and feeling of well-being. It by no means produces these effects in every patient. In general, those patients with lesions of the mouth or jaw or with obstructive lesions of the gastrointestinal tract are

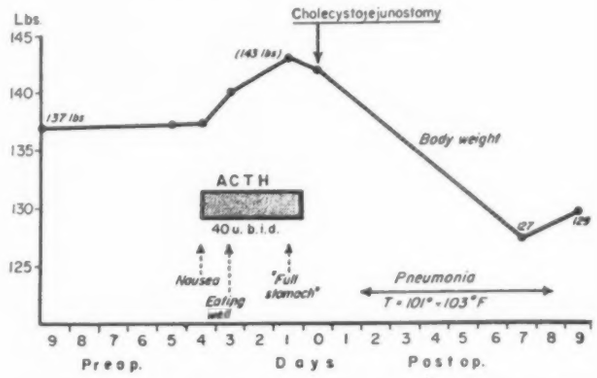


Fig. 10.—Weight gain in patient with obstructive jaundice after administration of corticotropin.

not suitable for this type of therapy. Now that intravenous solutions of fat and of concentrated protein hydrolysate are available, it is not difficult to effect weight gain by this parenteral therapy prior to operation. We believe it is preferable to achieve increased food intake and weight gain by the oral route if possible, and corticotropin may provide just the additional stimulus needed to bring certain patients into optimal preoperative condition.

Summary

The most important condition in which steroids are useful in treating surgical patients is that of acute adrenal insufficiency after severe injury or illness. The most prominent sign of this condition is persistent hypotension which cannot be explained by blood loss or coronary disease and which does not respond to adequate blood replacement. In these conditions, rapid, adequate therapy with hydrocortisone administered intravenously may be lifesaving. Patients requiring operation who have been on long-term steroid therapy present the hazard of adrenal depression and an acute insufficiency during operation. We believe that the safest procedure is to prepare all of these patients with steroids prior to operation. Corticotropin may be of value before operation by effecting a feeling of well-being and increasing appetite and food intake. Other beneficial effects of corticotropin include suppression of fever, toxicity, and malaise in conditions such as regional enteritis, and diminution of hypersensitive reactions in hemolytic anemia or thrombocytopenic purpura. Under such circumstances, when operation is contemplated in patients acutely ill with ulcerative colitis or purpura (less commonly with regional enteritis), administration of corticotropin may result in so much improvement that operation is made safe instead of being extremely hazardous. Contraindications to the use of steroids include active tuberculosis, malignant hypertension, uremia, psychoses, and the presence of active ulcers in the gastrointestinal tract.

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REPORT TO THE COUNCIL

The Council has authorized publication of the Sixth and final paper, which was presented as part of a symposium-panel discussion held in Washington, D. C., Sept. 25, 1958, on The Use and Abuse of Adrenal Steroids. The first five papers appeared in THE JOURNAL *on June 20 and 27 and July 4, 11, and 18, 1959, pp. 952, 1063, 1179, 1311, and 1411. The panel discussion which concluded the program is available in mimeographed form in the Secretary's Office, Council on Drugs.*

H. D. KAUTZ, *M.D., Secretary.*

STEROID THERAPY IN OPHTHALMIC LESIONS

IRVING H. LEOPOLD, M.D., D.SC., *Philadelphia*

Since the advent of cortisone approximately a decade ago, numerous steroids and steroid derivatives have been evaluated for their ocular effects when administered locally and systemically. These include cortisone (Cortisone, Cortogen, Cortone) acetate and free alcohol, hydrocortisone (Cortef, Cortril, Hycortole, Hydrocortone) acetate and free alcohol, hydrocortisone tertiary-butyl-acetate, prednisolone (Delta Cortef, Hydeltra, Meticortelone, Meti-Derm, Paracortol) free alcohol and acetate, prednisolone butylacetate (Hydeltra-T. B. A.), methylprednisolone (Medrol), triamcinolone (Aristocort, Kenacort), and dexamethasone (Decadron, Deronil). Not all of these have had completely adequate trial in ophthalmology. However, when topically applied, only minor differences in clinical activity have been noted. If employed in individual dosages and proper vehicles and method of administration, all have equivalent anti-inflammatory potency for ocular diseases. For ophthalmic therapy, these agents may be applied locally in solution or ointment vehicles or injected subconjunctivally. There appears to be no significant advantage to intracameral injection. They may also be used systemically. Corticotropin (ACTH, Acthar, Corticotropin, Cortrophin) is employed intravenously or intramuscularly for ocular diseases.

The present trend is to use corticosteroids in preference to corticotropin because of the ease of administration and the effectiveness of locally applied forms. Local routes are preferred over systemic ones because of the ease of administration, lower cost, and freedom from systemic side-effects, which allows treatment to be continued safely over a long period of time.[1]

It has been established that steroids do not act on the cause of ocular disease but do reduce the reaction of the tissues to an exciting agent. They suppress hypersensitivity reactions and inflammations due to infection, inhibit neovascularization, reduce fibroblastic activity, and interfere with some immunological reactions.[2] Minor differences in local activity have been demonstrated clinically and experimentally; e. g., hydrocortisone locally instilled has been shown to be more effective than cortisone for vernal conjunctivitis.[3] The effectiveness of each is approximately the same for other anterior segment inflammations when applied topically.

Penetration studies have revealed a difference, in ability to penetrate, of the acetate and free alcohol varieties of cortisone, hydrocortisone, prednisone (Deltasone, Deltra, Meticorten, Paracort), and prednisolone. It has also been demonstrated that the acetate variety of hydrocortisone penetrates more readily through the cornea than the more soluble phosphate and succinate forms.[4] This may account for the slightly greater anti-inflammatory action of the less soluble derivatives when administered locally.[5] Studies of penetration of systemically applied steroids did not show a clear-cut relationship between the ease of penetration and anti-phlogistic action.[6]

Experimental and clinical studies over the past 10 years have revealed that, in anterior ocular inflammations, locally applied steroids are equal in effectiveness to systemically administered steroids or corticotropin.[7] In posterior segment inflammations, local routes appear to be inferior to systemically administered steroids or corticotropin. Steroids given systemically seem to be equivalent to corticotropin for most of the responsive posterior segment conditions.[8]

Since steroids are easily administered systemically, they are usually preferred over corticotropin for equally responsive conditions. However, corticotropin may be preferred for severe inflammations that threaten the functional integrity of the eye. In severe intraocular infections, corticotropin given intravenously, which mobilizes many adrenal steroids, is preferred to oral therapy with steroids for the purpose of reducing inflammatory reactions until the infecting agents can be overcome by the specific antibiotic.[9] As in other areas of the body, hormonal therapy is used in ophthalmology for the sole purpose of controlling inflammation until the ocular defenses can handle the problem; they have

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no curative effect on ocular diseases and possess no bactericidal or tissue-stimulating activity. In ocular pathology the effect of the hormones is not to make up a deficiency of hormones; they inhibit inflammation, whether it be due to allergic, toxic, infectious, or traumatic etiology. If the stimulus is great, the steroids may not prove adequate to block the reaction.

Topically and systemically administered steroids produce favorable results in such external inflammations as contact dermatitis, rosacea keratoconjunctivitis, vernal conjunctivitis, allergic conjunctivitis, allergic keratoconjunctivitis, marginal corneal ulcers, and phlyctenulosis. There are a number of ocular conditions that are not benefited including pemphigus and, in many cases, nodular episcleritis. Episcleritis, scleritis, and ocular manifestations of collagen disease have shown irregular responses.[10]

Steroids prove most useful in nongranulomatous uveitis of both the anterior and the posterior varieties. Uveitis due to sarcoid may respond incompletely. Recurrences are frequent and are not always quieted by additional or continued administration of steroids.

Sympathetic ophthalmia is best treated initially by intravenous administration of corticotropin and carried to the point of quiescence by steroids given systemically and locally. The continuous gradual reduction of steroids may demand a year or more until therapy is no longer required.

Occasionally, but rarely, one steroid might succeed in controlling an ocular disease in which another in large dosage has failed. Isolated examples of dramatic improvement have been seen, but this is not the usual experience of the majority of ophthalmologists dealing with degenerative diseases. Most of the results with degenerative ocular diseases are not impressive. Optic neuritis and retrobulbar neuritis seem to quiet more rapidly with the institution of steroids, particularly corticotropin given intravenously.

Steroids have been shown to be contraindicated in corneal ulcers due to herpes simplex[11] and fungi.[12] Bacterial ulcers may respond in the presence of steroids if the anti-infectious therapy has been specific, properly administered, and in adequate dosage. The same applies to conjunctivitis of similar etiologies.

In dealing with conjunctivitis, it is fairly well recognized that ideal therapy demands specific diagnosis. It is true that one cannot always be certain of etiology. Cultures and cytological studies are helpful but expensive. Most conjunctival inflammations subside spontaneously. Steroid therapy may reduce the local reaction but may interfere with natural resistance. Therefore, it is recommended that steroids not be used as a substitute for clinical acumen. One should employ less hazardous and usually less expensive medicaments such as astringents, zinc preparations, quaternary ammonium compounds, or even saline irrigations until the cause of the disease is indicated or until cultures and smears can aid in the selection of specific medicaments. After such a course, one is less likely to enhance the development of dendritic keratitis or corneal fungous infections. Both of these types of infections have increased in severity and incidence since the advent of locally administered steroids. It has been noted repeatedly that the patient undergoing local therapy with steroids may have less discomfort and see his physician less frequently; consequently, the gradual progression of the disease may go undetected until late in its course.

Fungous infections of the cornea can readily be produced experimentally by pretreatment with steroids. This has been demonstrated by Ley and Sanders [12b] and by Montana and Sery.[12c] Perhaps a safe rule to follow for the local use of steroids in external ocular disease is this: when a doubt exists as to diagnosis or to the likelihood of a favorable response to steroids, steroids should not be used.

There is also a contraindication to systemic administration of steroids in granulomatous uveitis and intraocular infections that might be of fungal or perhaps viral origins. It has been demonstrated that steroids have a disastrous influence on experimental fungal choroiditis whether this is due to Candida albicans or to Aspergillus.[13] The injection of steroids during the course of such an experimental infection causes exacerbation of the inflammation in a disease which is often otherwise self-limited.

Similarly, Woods has demonstrated less favorable response in acid-fast intraocular infections with steroids alone. Uveitis due to sensitivity to tuberculoprotein can react favorably to steroid administration. The difficulty is to determine the etiology. Perhaps simultaneous administration of antituberculosis drugs in adequate concentration might prevent the unfavorable effects of steroids on tuberculous uveitis. However, when one is reasonably certain of a tuberculous etiology in uveitis but cannot determine relative rate of infection and hypersensitivity, the specific antituberculosis chemotherapy should be employed first and steroids added to this later if the results have not been favorable and if the uveitis is still considered to be of tuberculous etiology.

There is some clinical evidence that steroids are not harmful in toxoplasmic uveitis. However, the diagnosis here is not certain, and the favorable results may be due to another cause.

Sympathetic ophthalmia and sarcoids are examples of granulomatous uveitis that can respond favorably to long-term therapy. However, long-term treatment has many hazards. The over-all rule that can be applied to steroids in ophthalmology would be to use steroids when long-term therapy is necessary in those ocular conditions in which no other therapy with fewer side-effects is known to be helpful. The crucial word in this sentence is "helpful," for the steroids must be known to have been helpful in the condition before they are employed on a long-term basis. Steroids should not be used simply because the ophthalmologist knows nothing else to do.

Summary

Corticosteroids and adrenocorticotropic hormones given systemically are of considerable value in the therapy of ocular disorders. There are undesirable ocular effects from corticosteroids such as the development of and/or enhancement of herpes simplex keratitis and fungal keratitis after local corticosteroid ocular instillations, and there are the possibilities of undesirable side-effects from the long-term systemic administration of corticosteroids and corticotropin. These agents should be used only for those ocular conditions in which definite benefit has been demonstrated. They should not be used simply because the physician knows nothing else to do for the ocular disorder. Steroids are of limited value in the management of infectious diseases. They certainly should not be used in the treatment of ocular infectious disease without adequate specific antimicrobic coverage. Long-term therapy with steroids in ocular disorders should be avoided unless there are specific indications.

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The Personnel Placement Service is operated without charge for the benefit of hospitals and pharmacist members of the American Pharmaceutical Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. The ultimate purpose is the improvement of pharmaceutical services in hospitals, by more adequately fulfilling hospital pharmacy personnel needs and by locating positions which provide challenging opportunities for pharmacists who have indicated an interest in a hospital career.

By participating in the service, the hospital indicates a desire to achieve a pharmaceutical service which meets the *Minimum Standard for Pharmacies in Hospitals.* A description of the position should be submitted to the Division of Hospital Pharmacy on the forms provided. The hospital will receive applications directly from the applicant. The hospital agrees to reply to each application received and to notify the Division of Hospital Pharmacy when the position is filled.

The pharmacist, by participating, agrees to submit a Personnel Placement Service Information Form to the Division of Hospital Pharmacy. The applicant will then be notified of openings listed with the Service as they become available and can negotiate directly with the hospital if he is interested. It is agreed that the Division of Hospital Pharmacy will be notified as soon as a position is accepted.

A listing of positions open and wanted will be made regularly in the AMERICAN JOURNAL OF HOSPITAL PHARMACY without charge. Neither the name of the hospital offering the position nor the name of the applicant will be listed, except by code. All inquiries should be directed as shown below, including the code number.

Address all inquiries to

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positions wanted

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. B.S. received from City College of N.Y. Hospital pharmacy experience. Registered in N.Y. Prefers to locate in Northeast. PW-191

STAFF PHARMACIST—Male, married. B.S. One year's hospital pharmacy experience. Registered in N.Y. and Fla. Prefers to locate in Fla. PW-190

CHIEF PHARMACIST—Male, single. B.S. Registered in Minn. and N. D. Prefers foreign job anywhere. PW-189

CHIEF PHARMACIST—Male, married. B.S. Six years' hospital pharmacy experrience. Prefers to locate in Calif. Registered in Calif. and Ill. PW-187

PHARMACIST—Male, single. B.S. received in 1956. One year's hospital pharmacy experience. Would prefer Chicago area. Registered in Mich. PW-186

CHIEF PHARMACIST—Male, married. M.S. Hospital experience. Prefers to locate in East. Registered in N.Y., Mich., N.J., and Fla. PW-184

PHARMACIST—Male, Married. B.S. Three years' experience in Sudan Interior Mission Hospital. Prefers to locate in South particularly S.C. Registered in S.C. PW-183

STAFF OR ASST. CHIEF PHARMACIST—Female, single. B.S. Three years' hospital experience. Prefers to locate in Midwest, registered in Mo. PW-181

PHARMACIST—Male, married. B.S. Interested in career in hospital pharmacy. Prefers to locate in East. Registered in N.Y. and Ill. PW-180

CHIEF PHARMACIST—Male, single. B.S. Four years' hospital experience. Interested in manufacturing and administration. Registered Conn. Prefers Northeast section of country. PW-179

ASST. CHIEF OR CHIEF PHARMACIST—Male. B.S. received in 1954. Desires to locate in Mich., Ohio or Ill. Registered in Mich. PW-177

ASST. CHIEF OR STAFF PHARMACIST—Female, single. B.S. Registered in La. and Ohio. Prefers Ohio and Northern part of country. PW-176

PHARMACIST—Female, single. Graduate of University of Nebr. B.S. Registered in Nebr., Mich. and Pa. PW-175

CHIEF PHARMACIST—Male, married. B.S. Registered in Mo. and Kansas. Prefers Southeast or Southwest section of Country. Desires position with possibility of assuming administrative duties. PW-174

PHARMACIST—Butler University graduate with Ph.C. degree; Registered in Ill., Ky., Ind., and Ore., prefers to locate in Midwest. PW-173

PHARMACIST—Graduate Philadelphia College of Pharmacy and Science 1959; 22 months' hospital pharmacy experience; registered in Pa.; desires position in the East. PW-172

STAFF PHARMACIST—Female. 1957 graduate of the University of Buffalo College of Pharmacy. Registered in New York State. Prefers to locate in the East. PW-171

CHIEF PHARMACIST OR ASST. CHIEF PHARMACIST—Graduate University of Pittsburgh College of Pharmacy, 1956. Registered in Ohio and Pennsylvania. Staff pharmacist experience in making sterile solutions, bulk compounding, student nurse instruction, formulary development and purchasing. One year's experience as chief pharmacist with supervisory responsibilities. Available within 30 days and will locate in any section of the United States. PW-169

PHARMACIST—Registered in Iowa and South Dakota. Prefers to locate in Michigan, Colorado or Arizona. Management experience. PW-167

PHARMACIST—Female. Graduate of the Univeristy of Idaho 1954. Registered in Illinois. Hospital experience. Prefers Chicago area. PW-166

PHARMACIST—Graduate of Long Island University and the University of Louisville. Prefers position in Kentucky or Virginia area. PW-165

CHIEF OR ASST. CHIEF PHARMACIST—Female. B.S. and M.S. Purdue University. Ten years' hospital pharmacy experience. Registered in Indiana and Kentucky. PW-164

STAFF PHARMACIST—Young female pharmacist from Taiwan would appreciate position in U.S. teaching hospital with opportunity to learn more about hospital pharmacy. Has experience as manufacturing pharmacist at National Taiwan University Hospital. PW-163

STAFF OR ASST. CHIEF PHARMACIST—Male. Served hospital pharmacy internship. One year's additional experience. Registered in Minn. and Wash. Prefers to locate in West. PW-162

PHARMACIST—Male. Registered in La. and Mo. Experienced. Prefers Midwest. PW-161

STAFF PHARMACIST—Female. Prefers location in long term illness-type institution. Registered in Calif. and Ohio. Experienced. PW-160

STAFF PHARMACIST—Male, married. Registered N.Y. and N.J. Prefers New England. PW-157

CHIEF PHARMACIST—Female, single. B.S. Registered R.I. Eight years' hospital pharmacy experience. PW-156

ASST. CHIEF PHARMACIST—Male, single. Registered N.Y. and Vt. Served hospital pharmacy internship; now employed part-time staff pharmacist. Prefers Eastern part of country. Has M.S.; 4 years' hospital pharmacy experience. PW-154

ASST. PHARMACIST—Male, married. B.S. Served hospital pharmacy internship. Experienced hospital pharmacist, research pharmacist and retail pharmacist. PW-151

CHIEF PHARMACIST—Male, married. B.S. Ten years' hospital experience. Registered Mass., Ill., Mo., Ky., Tenn., and Va. PW-150

PHARMACIST—Male, single B.S. pharmacy, June, 1959. Locate East. PW-149

ASST. CHIEF OR CHIEF PHARMACIST—Single, Male. Registered in D.C., Ill., Md., and Pa. Graduate University of Pittsburgh in 1953; experience in research; Prefers North and East. PW-148

CHIEF PHARMACIST—Registered in Mo. and Ill. Ph.G. degree; 8 years' experience in hospital pharmacy. PW-147

STAFF PHARMACIST—Male, single. Completed military requirements. Hospital pharmacy experience. Prefers East. PW-146

CHIEF PHARMACIST—Registered in N.J. Any location. Six years' experience in hospital pharmacy. PW-145

CHIEF PHARMACIST—Prefers N.Y. or N.J. area. Over 20 years' experience as chief pharmacist and purchasing agent. Graduate St. John's University College of Pharmacy and registered in N.Y. and N.J. PW-144

STAFF PHARMACIST—Female, single. Registered Philippines. M.S. pharmacy, St. Louis College of Pharmacy. Locate any section of country. PW-143

ASST. CHIEF PHARMACIST—Male, married. B.S. pharmacy. Registered N.Y. Hospital and retail experience. Locate N.Y. State. PW-142

CHIEF PHARMACIST—Male, married. B.S. Conn. registration. Five years' hospital pharmacy experience. Prefers Northeast section of country. PW-140

STAFF PHARMACIST—Female, married. Registered Kansas. Four years' hospital pharmacy experience. PW-136

PHARMACIST—Male, single. Registered Conn. and N.J. Five years' hospital pharmacy experience. B.S. Prefers Conn. or Texas. PW-123

ASST. DIRECTOR OR DIRECTOR OF PHARMACY SERVICES—Male, single, B.S. Retail and five years' hospital experience. Registered Ill. PW-119

STAFF PHARMACIST—Female, single. Registered Mo. B.S. Hospital pharmacy experience. Desires to locate in Midwest. PW-104

positions open

ASST. CHIEF PHARMACIST—440 bed teaching hospita.l Must be registered in Mo. Forty-four hour week, three weeks' vacation, one week sick leave, state retirement and insurance. PO-147

ASST. CHIEF PHARMACIST—250 bed general hospital located in N.Y. Male preferred. Registration in N.Y. required. Ability to pass N.Y. State Civil Service examination. Duties include filling ward orders, patient prescriptions, checking stock and small volume parenteral solution manufacturing. Forty hour week, 3 weeks' vacation, annual sick leave, 7 paid holidays, retirement plan, group insurance available. Located outside city. Some housing available on premises. PO-146

STAFF PHARMACIST—650 bed general hospital located in Chicago, Ill. B.S. required. Must be eligible for registration in Ill. Male under 35 years preferred. Duties include general dispensing (inpatient and outpatient) and teaching. Forty hour week, one month vacation with pay, free medical benefits, retirement program. PO-145

CHIEF PHARMACIST—110 bed general hospital located in Ill. Must be eligible for licensure in Ill. Duties include administration of the dept., purchasing, maintaining inventory records, preparing scientific and educational exhibits, liaison between medical staff and administration, assisting in establishment and maintenance of a formulary and a formulary committee. Forty to forty-four hour week, two weeks' vacation. PO-144

CHIEF PHARMACIST—145 bed general hospital. Male preferred. Will have complete responsibility of pharmacy dept. Must have registration in Ohio. Forty-four hour week, vacation, sick leave and paid holidays. Hospital pharmacy experience preferred. PO-143

ASST. CHIEF PHARMACIST—166 bed hospital located in Montana. Forty hour week, two weeks' vacation. PO-142

CHIEF PHARMACIST—155 bed hospital located in N. J. Must be registered in N. J. Dispense drugs to nursing units, maintain a formulary and confer with Medical Staff Formulary Committee, maintain up-to-date adequate inventory records, administer alcohol and narcotic storage and issuance, interview drug representatives and make purchases of drugs subject to administrator's approval, establish together with the administrator appropriate charges for drugs, and issue inpatient and outpatient drug slips. Generous benefits. PO-141

ASST. CHIEF PHARMACIST—262 general type hospital located in Indiana. Duties include general Rx work, limited manufacturing, assisting in teaching student nurse program, assisting in narcotic security. Forty to forty-eight hours per week, three weeks' vacation after three years. Generous benefits include sick leave, paid holidays, hospitalization and retirement. PO-140

ASST. CHIEF PHARMACIST—Woman preferred. Must have Pa. registration. Duties include filling prescriptions and small volume of manufacturing. Forty-hour week, 7 holidays per year, 7 sick days with pay per year. PO-139

CHIEF PHARMACIST—65 bed (increasing to 100 bed) general hospital located in N.Y. Carry out functions of pharmacy dept. Opportunity to be named Chief Purchasing Agent and be chief purchaser for the hospital. Forty-hour week, up to 3 weeks' vacation, located in low cost living area. PO-138

CHIEF PHARMACIST—495 bed general hospital located in Va. Responsible to superintendent for management of pharmacy personnel, solution manufacturing, purchase of all pharmaceutical items and supervision of compounding and dispensing drugs. Lecture student nurses. Must be registered, hospital experience preferred. Varied working hours, 3 weeks' vacation. Benefits include meals while on duty, hospitalization insurance, if single - room available. PO-137

CHIEF PHARMACIST—250 bed general hospital located in Rochester, N. Y. Must be registered in N. Y. Hospital experience helpful, but not essential. Forty-hour week. Liberal personnel policies. PO-136

CHIEF PHARMACIST—70 bed general hospital, located in North Carolina. Responsible for establishing a pharmacy department and assisting in the purchasing department. Generous benefits. PO-135

CHIEF PHARMACIST—150 bed general hospital, located in New Mexico. To assume complete charge of purchasing and distributing drugs. PO-134

STAFF PHARMACIST—75 bed general, private hospital located in Indiana. State registration required. Male or female. PO-131

STAFF PHARMACISTS—300 bed general hospital. Inpatient orders - no bulk compounding. Must be eligible for Ill. registration. Forty-four hour week, 2 weeks' vacation. PO-130

CHIEF PHARMACIST—120 bed general, non-profit hospital. Individual will have complete charge of ordering, dispensing and charging of medical supplies. Male or female. Registration in Ohio required. Forty to forty-eight hour week, two weeks' vacation, other generous hospital benefits. PO-129

ASST. CHIEF PHARMACIST—325 bed hospital; 40-hour week; 4 weeks' vacation; Must be eligible for registration in Pa. PO-128

CHIEF PHARMACIST—185 bed private nonprofit hospital located in Va. Prefer applicant with hospital pharmacy internship and 1 year's experience. PO-126

STAFF PHARMACIST—450 bed general hospital located in Ohio. PO-124

ASST. CHIEF PHARMACIST—3,300 bed psychiatric hospital. To assist in the reorganization of the department. Eligible for registration in Ohio. Two years' experience preferred. PO-123

CHIEF PHARMACIST—60 bed mission hospital operated by Presbyterian National Missions; extensive outpatient department; on Navajo Indian Reservation near Gallup, N.M. Qualified to register in Ariz.; single man or woman, challenged by service rather than benefits. PO-122

SENIOR PHARMACIST—325 - expanding to 500 - bed university hospital. Requirements: B.S., registration in Calif., hospital pharmacy internship, supervisory experience. Forty-hour week, 3 weeks' vacation. PO-119

STAFF PHARMACIST—250 bed hospital. Ohio registration, but experience not necessary. Forty-hour week, 2 weeks' vacation. Scheduled salary increases. PO-118

STAFF PHARMACIST—1,000 bed general hospital. Eligible for registration in Ohio. Large O.P.D. Clinic. B.S. required. Forty-hour week, 2 weeks' vacation. PO-117

STAFF PHARMACIST—150 bed general hospital. Only female considered. Must be eligible for Ill. registration. Hospital experience desirable, but not necessary. Forty-hour week, 2 weeks' vacation. PO-116

ASST. CHIEF PHARMACIST—425 bed general hospital. Duties include dispensing and supervision of special projects. Prefer male applicant with internship in hospital pharmacy. Unique opportunity to obtain experience. PO-115

CHIEF PHARMACIST—150 bed general hospital. To assume complete responsibility for the pharmacy department. Three weeks' vacation; discount on meals and hospitalization. PO 114

CHIEF PHARMACIST—340 bed general hospital in South; affiliated with medical school; outpatient clinic and hospital pharmacy internship program. PO-112

STAFF PHARMACISTS—Two—Eligible for licensure in West Va. and Ky. PO-111

CHIEF PHARMACIST—73 bed general hospital. Complete responsibility of Pharmacy Dept. Forty-four hour week, 2 weeks' vacation. PO-102

ASST. CHIEF PHARMACIST—152 bed general hospital expanding to 180 beds. Registration in Neb. required. Forty-hour week, 2 weeks' vacation. PO-101

STAFF PHARMACIST—400 bed general hospital located in Iowa. Forty-hour week, 2 weeks' vacation. PO-99

CHIEF PHARMACIST—425 bed hospital. Male preferred. Mo. registration required. Will train good applicant. Forty-hour week. PO-98

STAFF PHARMACIST—400 bed general hospital. Eligible for registration in Fla. Forty-hour week. PO-96

STAFF PHARMACIST—500 bed general hospital located in Okla. B.S. required. Forty-hour week. PO-95

ASST. CHIEF PHARMACIST—315 bed general hospital. Registration in Iowa required. Experience desirable. Forty-hour week, 2 weeks' vacation. PO-92

STAFF PHARMACIST—400 bed general hospital. Internship in hospital pharmacy preferred. Eligible for Tex. registration. Forty-hour week; 2 weeks' vacation. PO-90

STAFF PHARMACIST—316 bed general hospital. Eligible for registration in Minn. Some manufacturing. Forty-hour week; 2 weeks' vacation and other benefits. PO-81

ASST. CHIEF PHARMACIST—237 bed general hospital in West Va. Female desired. Forty-four hour week, 2 weeks' vacation. PO-77

STAFF PHARMACIST—335 bed hospital located in Fla. Duties include responsibilities in outpatient department and parenteral solution room. Forty-hour week, 2 weeks' vacation and 1 meal daily. PO-75

CHIEF PHARMACIST—265 bed general hospital. Varied duties including teaching if interested. Forty-hour week, 2 weeks' vacation. PO-74

CHIEF PHARMACIST—325 bed general hospital. Eligible for registration in N.Y. Hospital experience desirable. Forty-hour week, 2 weeks' vacation. PO-70

STAFF PHARMACIST—325 bed research hospital. Minimum 2 years' experience, preferably in hospital pharmacy. N.Y. registration required. Duties includes manufacturing sterile solutions and assisting in product development. Research work beyond 40-hour week available at hourly rate. PO-61

CHIEF PHARMACIST—88 bed hospital located in Pa. Planning expansion to 125 beds for general patients and 40 beds for chronic patients. Possibility for pharmacist to serve as Asst. Adm. in charge of Purchasing, Central Supply, and Store Room. Forty-hour week, 2-4 weeks' vacation. Young man preferred. PO-59

ASST. CHIEF PHARMACIST—Large voluntary hospital located in Brooklyn, N.Y. Must be eligible for registration in N.Y. Supervisory ability needed. Thirty-five hour week, 2 weeks' vacation; 2 weeks' vacation; 10 days' sick leave; 9 holidays. PO-51

STAFF PHARMACIST—460 bed general hospital in Mass. Forty-hour week, 2 weeks' vacation, other benefits. PO-40

ASST. CHIEF PHARMACIST—310 bed general hospital located in Va. Forty-hour week, 2 weeks' vacation, 3 weeks' sick leave, 6 holidays. Also STAFF PHARMACIST in same hospital. Experience preferred; forty hour week, 2 weeks' vacation. PO-35

STAFF PHARMACIST—550 bed general hospital located in Ohio. Forty-hour week; 2 weeks' vacation. PO-34

CHIEF PHARMACIST—350 bed hospital. Must be eligible for licensure in N.J. Interest in manufacturing; forty-four hour week, 2 weeks' vacation. PO-6

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► CONGRATULATIONS ARE IN ORDER for our southern colleagues, the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, on the recent release of the "American Hospital Formulary Service." This sturdy, red, loose-leaf folder holds in a space of about 100 cubic inches, 3 lbs. of pages with some of the most useful information ever to be made available to practicing hospital pharmacists in busy hospital pharmacies.

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—From Editorial appearing in THE HOSPITAL PHARMACIST (Canada) 12:61 (Mar.-Apr.) 1959.

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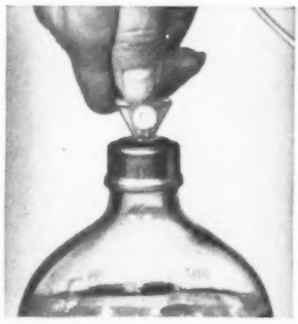

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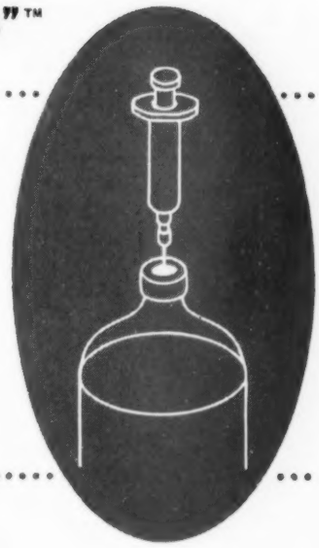
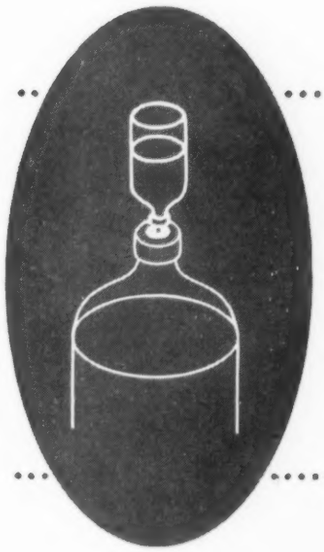
ADDING MEDICATION IS EASIER AND MORE CONVENIENT

SAFTIFLASK® "28"™



Add liquid medication with syringe.



Add liquid medication from a special additive vial with spike.

Add liquid medication by attaching syringe luer hub to air-inlet opening of Saftiset.

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